TECHNOLOGY

Fleet Owner

Devoted to the better operation and maintenance of all automotive fleets

VOLUME 30 FEBRUARY 1943 No. 2

The Army's rolling to Alaska . . . on the road that *"couldn't be built"*

Man had never set foot on much of the wild frontier territory through which Army Engineers and contractors have punched their way to build the Alaska Highway . . . the most important military project since the Panama Canal.

Mounains stood in the way . . . their very grades hidden beneath the camouflage of forests never before penetrated. So did hundreds of bleak miles of muskeg, black mud and sub-arctic ooze deep enough to swallow huge motor trucks and leave no trace of where they had stood.

Indomitable men and machines . . . many of them Whitetrucks...slashedtheir way through, *and in record time.* Vital projects of this kind dramatize the wartime importance of motor trucks.

But your truck, too, is important because *it cannot be replaced.* To conserve its life is your patriotic duty.

Investigate now the White Cooperative Plan of Truck Conservation—a definite method prolonging truck life and saving critical materials. It provides all the facilities to enable you to fulfill the conservation pledge which the Office of Defense Transportation has asked every truck owner to sign.

White

THE WHITE MOTOR COMPANY, Cleveland

Builders of U. S. Army Tank Destroyers, Scout Cars, Half-Tracs, Prime Movers and Cargo Trucks, the complete line of Super Power Trucks and Tractors, City and Inter-City Coaches, Safety School Busses and the Famous *White Horse.*

MORE THAN 40 YEARS THE GREATEST NAME IN TRUCKS

No Worry about what type Ring to Install when You use

RAMCO 10 up

For Every Job .. Re-bore or Re-ring

"Believe me, getting the right ring combination into those jobs is more important than ever, now that there's a war to be won! We just must keep down engine wear and oil consumption by putting in the right rings and our best workmanship. Never a question about the right rings for the job when you install Ramco 10-Ups.

"Just mike up the cylinders..and then..whether it's a re-bore job, a partial hone, or just an 'as is' job..call for Ramco 10-Up, the all-purpose ring. Study its features (such as those illustrated here) and you'll see why." Send for free copy of "Inside Facts". Ramsey Accessories Mfg. Corp., 3693 Forest Park Blvd., St. Louis, Mo. In Canada: 364 Richmond St., Toronto.

Pledged U.S. TRUCK CONSERVATION CORPS

SCRAP THE AXIS
BY SAVING SCRAP

RE-POWER Those Truck Engines With

RAMCO 10 up

Specially Designed Heavy Duty

ALL-PURPOSE PISTON RINGS

AMCO 10-Up Includes FULL FLEDGED CAST IRON OIL RING

his ring performs
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is not just a
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ere is one of the
asons why Ramco
0 Up can control
il with

10-Up type

Spacer type

E LOW WALL PRESSURES OF ACTORY EQUIPMENT RINGS.

CARBON-CLOG-PROOF OIL SLOTS

IT BRIDGES THE GAP

How They Pass the Ammunition in New Guinea

A typical example of B. F. Goodrich development in truck tires

IN JUNGLE-MATTED New Guinea most of the fighting is an inch-by-inch, tree-by-tree affair. It's primitive country where mechanized equipment counts heavily—but where it's mighty tough to use it.

Here American-built Army trucks have an unromantic but important job of hauling ammunition and supplies to the front.

As well as tires for this purpose, B. F. Goodrich builds a special combat tire, designed to keep on rolling when hit with rifle and machine gun bullets. Other tires in Army service have super-traction treads that carry heavy trucks through mud and gumbo, across rivers and ravines, over swamps and deserts. Still others are special tires made with B. F. Goodrich synthetic rubber—Ameripol.

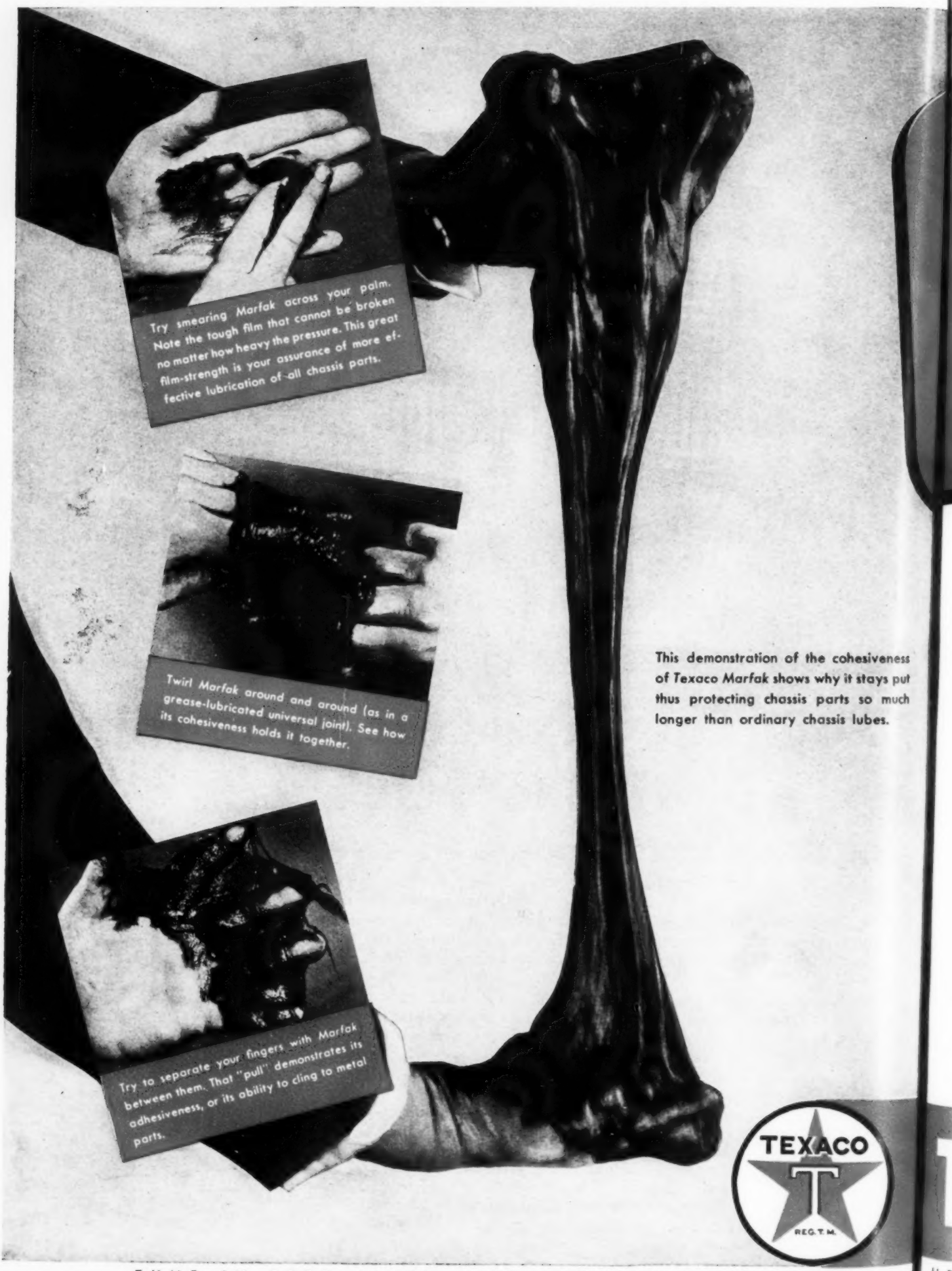
B. F. Goodrich has gone "all out" for war production, but that means taking care of essential civilian requirements, too—with tires designed to give the greatest possible mileage for every pound of rubber used.

And many of the truck tires we are offering owners with ration certificates today are exactly the same as those used by the U. S. Army!

When you must buy, get good tires. B. F. Goodrich Speedliner Silvertowns for trucks and buses have an amazing record for long mileage in all types of service. They are all built with a broad, flattened tread construction which gives many more miles per pound of rubber.

And some day they may be made with Ameripol synthetic rubber. When they are, remember that eighteen months before Pearl Harbor B. F. Goodrich was first to offer American car owners tires made with synthetic rubber.

FLEET OWNER, February, 1943, Vol. 30, No. 2. Published monthly by the Ferguson Publishing Co., 90 West St., New York, N. Y. Subscription price $3.00 per year in the United States and Canada. Single copies 35¢. Acceptance under the act of June 5th, 1934, authorized April 24th, 1941.


Try smearing Marfak across your palm. Note the tough film that cannot be broken no matter how heavy the pressure. This great film-strength is your assurance of more effective lubrication of all chassis parts.
Twirl Marfak around and around (as in a grease-lubricated universal joint). See how its cohesiveness holds it together.
Try to separate your fingers with Marfak between them. That "pull" demonstrates its adhesiveness, or its ability to cling to metal parts.
This demonstration of the cohesiveness of Texaco Marfak shows why it stays put thus protecting chassis parts so much longer than ordinary chassis lubes.
TEXACO
REG. T.M.

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS

...THE *Why* OF LONGER-LIVED CHASSIS PARTS

YOU can cushion chassis parts against road-shocks, lengthen their life, and reduce the time and labor spent in lubricating shackles, steering connections, etc. . . . by using *Texaco Marfak.*

Texaco Marfak provides a tough, adhesive-cohesive film that clings to metal, resisting the severest rain and road splash.

The reason behind *Marfak's* longer-lasting protection is this—while it liquefies inside a bearing, providing liquid lubrication, it maintains its original consistency at the outer edges, thus sealing itself in while sealing out dirt, grit, water.

For wheel bearings in heavy duty service, specify *Texaco Marfak Heavy Duty* . . . it stays in bearings and off brakes . . . protects against wear.

Outstanding performance has made Texaco first in each of the fields listed in the panel.

These Texaco users enjoy many benefits that can be yours. A Texaco Automotive Engineer will gladly cooperate in the selection of the most suitable lubricants for your equipment . . . just phone the nearest of more than 2300 Texaco distributing points in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

THEY PREFER TEXACO

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

TEXACO MARFAK

HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

What about the rubber tired cows in wartime?

TWENTY large cities receive all their milk by truck.

Four other large cities receive more than 96 per cent of their milk in this way.

What are fleet operators and owners doing to keep these rubber tired cows rolling from dairy to city? The answer to that question is part of the larger story of preventive maintenance, salvage of used parts, and new methods which the trucking industry has put into effect.

It is a story of ingenuity, common sense, and getting the utmost in dependability out of every truck accessory. It includes the use of Fiberglas-equipped batteries for the added dependability and longer life needed today to keep 'em rolling.

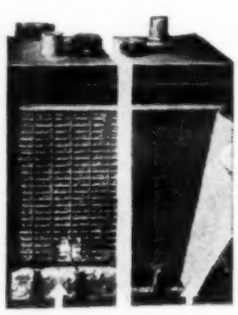
★ *these batteries have unusual staying power; in some cases, double that of comparable batteries without Fiberglas* Retainer Mats.* (1)

★ *these batteries stand up under extreme vibration; an important reason why they are used in many armored cars, tanks, and submarines.*

★ *these batteries have excellent cold-starting characteristics and higher average power output during lengthened life.*

For the reasons why Fiberglas-equipped batteries have the superiorities, see diagrams and captions at right.

Because the Army, Navy, and war industries are demanding such great quantities of Fiberglas Retainer Mats, batteries equipped with these mats may become harder to get. We are sorry, but we're also mighty glad that the armed forces are finding Fiberglas-equipped batteries highly important in the operation of many types of war machines. We are determined to provide enough Fiberglas for every vital wartime use where Fiberglas is the only material suitable for the job to be done. You can help too—take "extra special" care of your Fiberglas-equipped batteries . . . keep them in service. *Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ont.*



Left: Without Fiberglas Retainer Mats power-producing material sheds to the floor of battery gradually piling up sufficiently to short the cell.

Right: With Fiberglas Retainer Mats active material is held in place longer on battery grids, giving longer battery life and more constant power.

FIBERGLAS
*T. M. Reg. U. S. Pat. Off.

BATTERY RETAINER MATS

(1) According to impartial tests conducted to meet S.A.E. Specifications.

MILLER

WHEN SHOULD A TIRE BE RECAPPED?

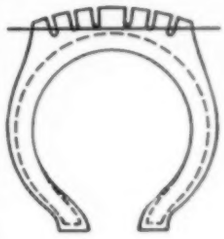
IF a tire fails prematurely, ODT order No. 21 says *you* must prove that it did *not* fail through neglect or abuse—otherwise a recap or replacement will be denied.

Here's a simple rule to determine the proper time to remove and recap a tire (if the carcass is in sound condition):

Remove the tire when most of the tread design has disappeared and the tread is smooth in the center area.

If you follow this rule, good casings can be recapped *more* times—you will get greater total mileage out of your original tire—your cost-per-mile of operation will be reduced.

See your nearest Miller distributor for his advice and service on recapping your present tires, and for the purchase of new Miller "Speed-Run Construction" truck tires (the tires built not only for long original mileage but for the plus mileage which efficient recap service can add).



The dotted line shows the approximate point at which a tire can be most economically recapped.

Here's a tire ready for recapping. Tread is worn smooth but breaker strip does not show.

ARMY (E) NAVY

MILLER

"Heavy Service" Truck Tires

THE MILLER RUBBER COMPANY

A Division of The B. F. Goodrich Company

Akron, Ohio • Los Angeles, Calif.

Helps Salvage Parts EASIER!

Due to prevailing replacement shortages, salvaging worn or broken truck parts to make them LAST LONGER and give vitally needed EXTRA SERVICE is a wartime "maintenance must" for every fleet operator today. It is another important job where specialized, fast-working Oakite degreasing can expedite maintenance . . . save you time and effort.

Cylinder heads and blocks, valves, pistons, crankshafts, spring hangers, rocker arms, motor pans, clutch parts, transmission cases and housings, water pump shafts . . . ALL these and innumerable other parts can be effectively degreased the preformance proved Oakite way!

Whether used in HOT or COLD solutions, by dip-tank or pressure-spray methods, Oakite materials help make QUICK WORK of thoroughly removing oil, grease and other deposits. Parts are left in GREASE-FREE condition so that they are easier to handle and inspect . . . subsequent welding, metallizing or other salvage procedure is done with greater ease, accuracy and speed!

Help on These Jobs, Too!

Let us give you data on time-conserving, effort-saving Oakite methods for handling this and such other work as degreasing dismantled motors before overhaul and rebuilding, reconditioning carburetors and fuel pumps, cleaning motors and chassis, and cleaning cooling systems. Write today for FREE, 36-page booklet giving details.

OAKITE PRODUCTS, INC., 52G Thames Street, NEW YORK, N. Y.

Technical Service Representatives in All Principal Cities of the United States and Canada

OAKITE MATERIALS—METHODS—SERVICE — Buy Bonds for Victory — **CLEANING** FOR EVERY CLEANING REQUIREMENT

FLEET OWNER

(Automotive Fleet Headquarters)

Charter CCA Member

Published Monthly in the interests of Automotive Fleet Owners, who do all or part of their own Service, and devoted to the Better Operation and Maintenance of Truck, Trailer, Bus Passenger Car, Taxicab and all Automotive Fleets.

Vol. 30 New York, February, 1943 No. 2

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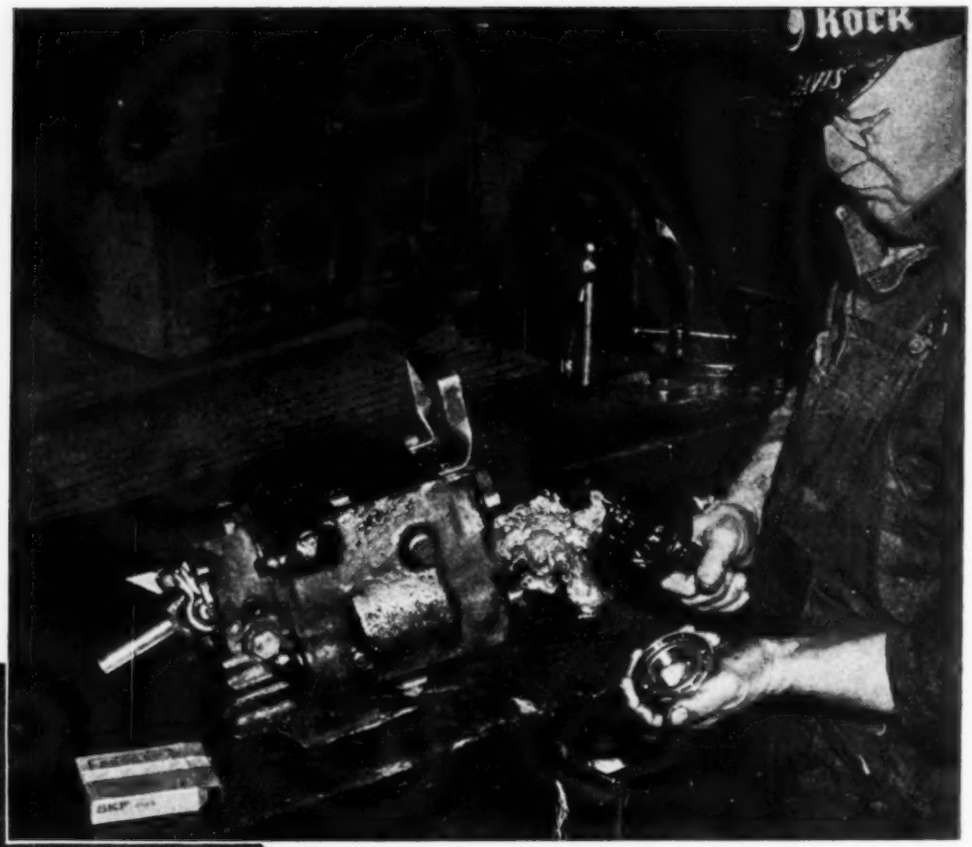
CHAMPION
PATENTED
ALEXANDRIA-BARCROFT & WASHINGTON
TRANSIT COMPANY
Alexandria, Virginia
April 7, 1942
Champion Spark Plug Company,
Toledo, Ohio.
Gentlemen:
We are very happy to let you know how we feel about Champion Spark Plugs and the service we are getting from them.
We have used Champions exclusively for the past six (6) years and, needless to say, if we were not thoroughly satisfied, we would have changed long ago. As it is, we have only words of praise for their dependability and economy. Champions have been extremely helpful in keeping our maintenance costs low. Prior to standardizing on Champions we had tried nearly every known brand of spark plugs in an effort to find the one most suited to our needs. Champion was the answer.
Very truly yours,
A. B. & W. TRANSIT COMPANY
By:
B. C. May,
General Manager.
BCM:lh
"...keeping maintenance costs low..."
A. B. & W. TRANSIT CO.
400

CHAMPION SPARK PLUGS

Shortage of vital materials and curtailment of gasoline make it imperative for all fleet operators to keep their equipment in first class shape at all times. To insure peak performance and maximum economy for every unit in your fleet, follow the example of the A. B. & W. Transit Co. and standardize on Champion Spark Plugs. You can rest assured Champions will deliver dependable performance unequalled by any other spark plug. "Keep 'Em Rolling Longer" with Champion Spark Plugs.

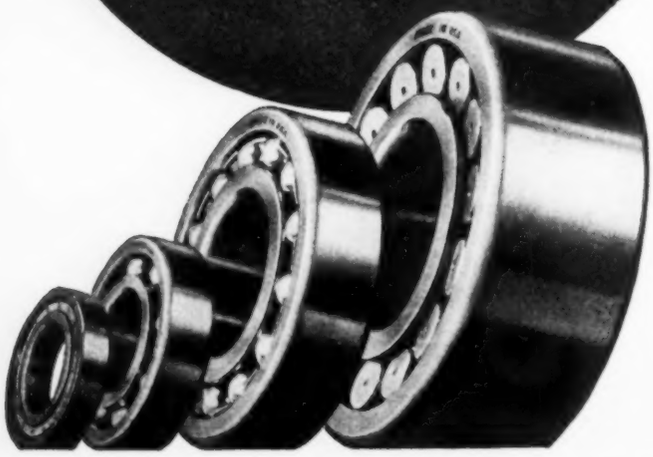
NO JOB TOO BIG—NO WORK TOO TOUGH—for CHAMPIONS

IF YOU *Install 'em Right*
THEY'LL RUN RIGHT



● *Parts are becoming increasingly difficult to obtain. Use them wisely. Make them last.*

SKF
Ball and Roller
BEARINGS



How soon a bearing will need replacing is often determined at the time it's installed. If you hammer the outer race, you will cause denting. Place one end of a tube snugly against the inner race, using a plate squarely on the other end, and then drive the bearing into place. By using clean tools and keeping the bearing away from dirt, you can lengthen bearing life. A thought for all fleet owners to remember. 5191

SKF INDUSTRIES, INC., PHILA., PA.

POUNDING THE ROAD BUMPS *Doubles* TIRE WEAR

You Can't Take the Bumps off the Road, But You *Can* Take the Pounding off the Tires—

WITH CLE-AIR SHOCK ELIMINATORS

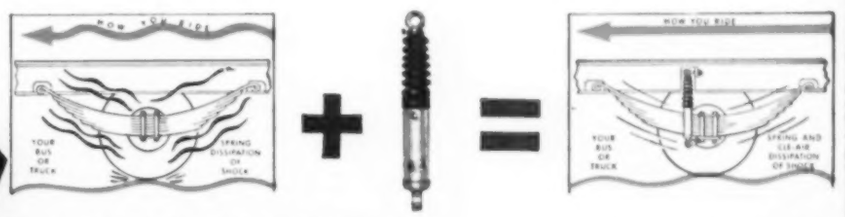
★ Note the simple diagram below. It shows at a glance just how CLE-AIR units protect your bus and truck tires when the going is rough. With *both* pneumatic and hydraulic cushioning, CLE-AIR Shock Eliminators dissipate the grueling impact of road bumps and humps almost magically.

This unique dual protection lessens wear and tear markedly—the tires riding the bumps buoyantly, not *pounding* into them—thereby eliminating the bouncing on and off the road, which "buffs off" the rubber. CLE-AIR equipped, the chassis or body glides on an "even keel" without sidesway, rolling and pitching, thus insuring comfort for bus passenger and safety for truckload. Putting an end to that rolling and swaying also prevents damaging "sidesway scuff" to tires!

CLE-AIR Shock Eliminators cut maintenance cost and, more important, *save time* by reducing repair lay ups. These savings, heretofore valuable, are today virtually a "must."

Write for our helpful booklet, "Meet The Judge"—full of illustrations, diagrams and case histories. It's free.

THIS DIAGRAM SHOWS HOW IT'S DONE


HOW YOU RIDE
YOUR BUS OR TRUCK
SPRING DISSIPATION OF SHOCK
HOW YOU RIDE
YOUR BUS OR TRUCK
SPRING AND CLE-AIR DISSIPATION OF SHOCK

On a rough road, the vehicle (at left) hits a second bump before the springs have had time to recover normally. Consequently the springs react against themselves, causing a series of sharp destructive shocks that are transmitted to every part of the vehicle. By contrast, the Cle-Air equipped vehicle (at right) is protected by a cushion of resilient air that absorbs road shocks, while hydraulic action snubs the recoil.

THE CLEVELAND PNEUMATIC TOOL CO.

HASKELITE *Now Proved*

UNDER THE TERRIFIC TESTS OF WAR

● The Nation's commercial body builders could have told the Army and Navy from their own experience to use Haskelite wherever strength and light-weight are vital.

The armed forces have learned its value and developed many war-time applications of Haskelite materials. Now both body builders and their customers will be glad to know that Plymetl, Phemaloid, Marine and Aircraft Plywood have all proved their worth under terrific tests.

Meanwhile, truck owners who had the foresight to specify light, strong bodies of Haskelite materials are now cashing in on both gas and tire savings.

HASKELITE MANUFACTURING CORPORATION

208 W. Washington St. Dept. F-4302 Chicago, Ill.

7310 Woodward Ave., Detroit, Mich. 405 Lexington Ave., New York City

PLYMETL

Metal-faced plywood panels of great rigidity and strength per pound of weight. Easy to fabricate; require less framing; provide a flat, non-wavy surface. In bus, truck and train construction Plymetl saves pounds, adds payload space.

PHEMALOID

Rigid, lightweight. For highways or battle fronts, wherever rugged plywood is needed to stand up under wear and hard use.

MARINE PLYWOOD

The construction material of the famous Navy Torpedo Boats.

AIRCRAFT PLYWOOD

accepted as a leading structural material by every designer.

HASKELITE

"DRIVIN' THE TRUCK ALL DAY, GUARDIN' THE CHAINS ALL NIGHT, I WONDER IF I CAN LAST TWO MORE MONTHS WITHOUT SLEEP"

YOUR PYRENE JOBBER CAN HELP

in the tire-chain crisis of World War #2

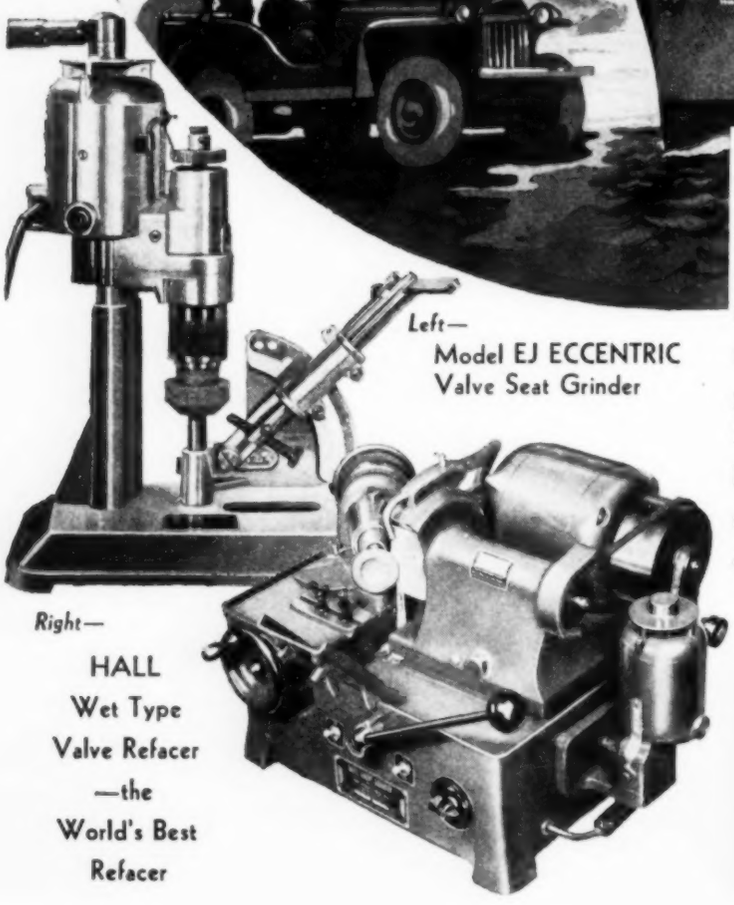
War-needed freight must move, and your over-worked fleet must be guarded against the hold-ups and accidents of snowy, icy highways. Yet chain manufacture is rigidly restricted.

Your Pyrene jobber is doling out his available sets of Pyrene chains where they are most essential — but stocks are limited. He does, however, have the important replacement parts to service present chains. He urges you to replace **NOW** worn sections in every pair of chains that can be reconditioned. Get them ready for the next storm.

That is how he can help you prepare for safe, on-schedule movement during storm emergencies.

Pyrene Manufacturing Company
NEWARK NEW JERSEY
ATLANTA KANSAS CITY CHICAGO SAN FRANCISCO

THEY'RE ALL SERVICED WITH HALL



Left—
Model EJ ECCENTRIC
Valve Seat Grinder

Right—
HALL
Wet Type
Valve Refacer
—the
World's Best
Refacer

In every field of transportation, in peace or war, you'll find HALL Wet Type Valve Refacers and ECCENTRIC Valve Seat Grinders being used to maintain original factory standards of precision, finish and performance . . . In production, too, you'll find HALL Grinders adopted by leading engine manufacturers . . . If HALL is the preferred equipment for production, can anything else be better for maintenance? If you are one of the thousands who already own HALL Equipment, remember that both service parts and factory reconditioning are immediately available . . . Ask your Jobber or write the factory for complete information.

THE HALL MANUFACTURING COMPANY
TOLEDO, OHIO, U. S. A.

HALL

TAKING CARE OF THE PRESENT

● Long range plans are essential—but not at the expense of our day-to-day responsibilities.

Here at K-D we try to maintain a common-sense balance between the future and the present.

Our long range plans call for constant research and development—of things we can't make now, but must have ready when the new day dawns.

Right now our big job is to help keep the nation's trucks and trailers and buses moving safely through the night.

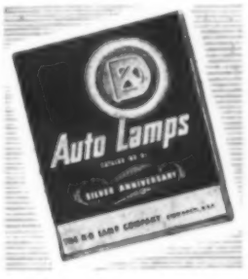
And one of the surest means of insuring your future and ours—is to take good care of these present insistent problems of the motorized transportation industry.

To this end we are increasingly vigilant on rules and regulations. Your jobber is being constantly supplied with the latest and most reliable data. He knows lights and lighting requirements—state and local regulations.

For the duration—and after—*your K-D jobber is lighting headquarters.*

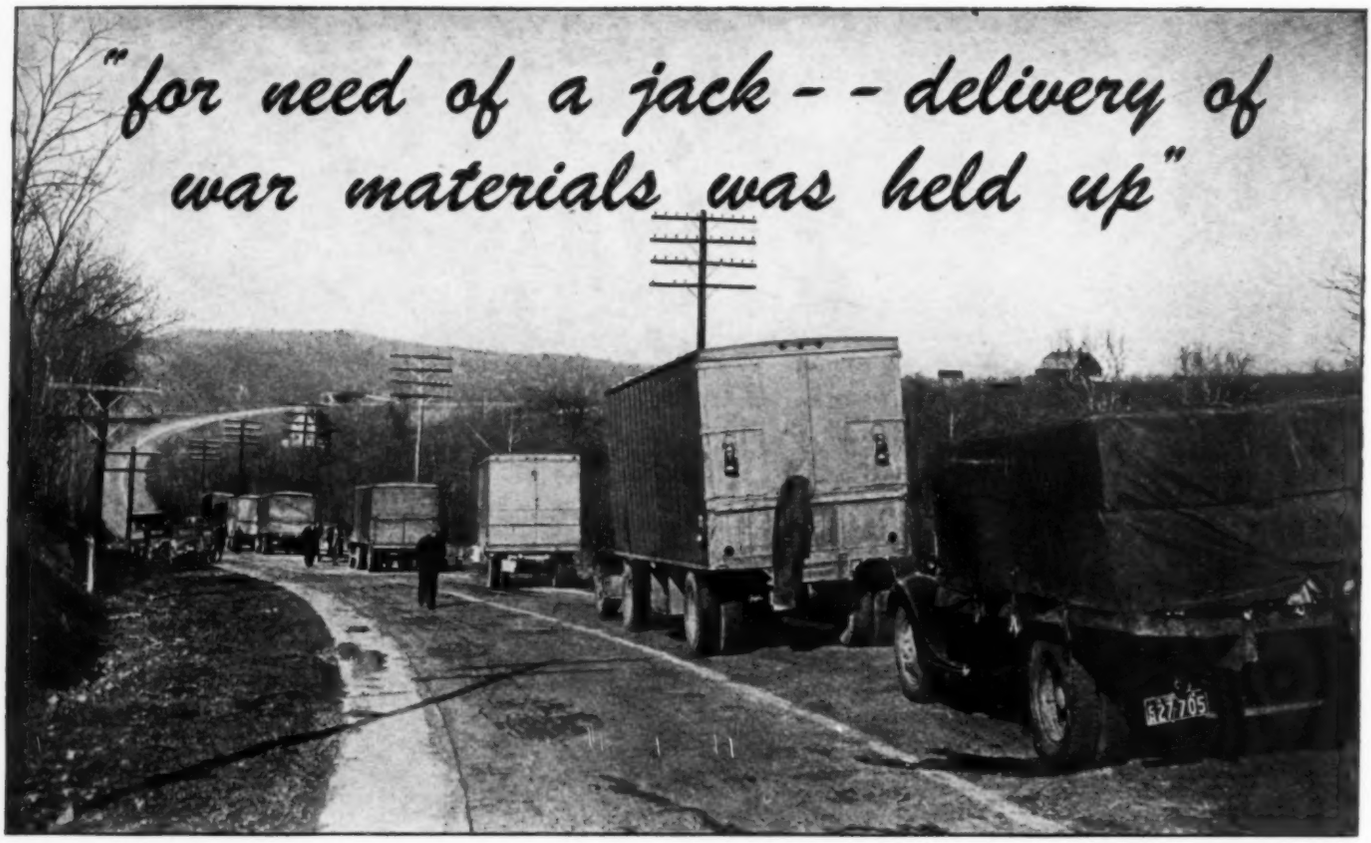
●

This free manual will help you meet everyday lighting problems. Your jobber has it or you may have one on request.



THE K-D LAMP COMPANY • CINCINNATI, OHIO

K-D LIGHTING *The Right Light for the Right job*



Do YOUR Part To Keep Trucks Rolling

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

Model 20.10A

Avoid unnecessary delay when tire changes are necessary . . . Equip your trucks with

HEIN-WERNER HYDRAULIC JACKS

It is bad enough for a truck driver to get a flat tire while on a run, but it's worse to get a flat while on a narrow road—*and not have a jack.* Traffic may be blocked, as illustrated above, and delivery of war materials held up.

You can help speed-up deliveries by making sure that the tool kit of each of your trucks contains a Hein-Werner Hydraulic Jack.

The speed and ease of operating one of these jacks cuts down the "lost time" required to lift the flat tire clear of the road, change the tire, and get the job rolling again.

Don't delay! Act today! Complete line includes hydraulic jacks of 3, 5, 8, 12, 20 and 30 tons capacity . . . *Quick delivery* can be made on orders carrying priority rating.

Ask your H-W Jobber for details—or write us

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

HEIN-WERNER HYDRAULIC JACKS
Are Built Right and Priced Right

Facts and Flashes

From the
Technical Service Department
ETHYL CORPORATION

FOR THE WARTIME BUS, TRUCK AND FLEET OPERATOR

1600 West Eight Mile Road
DETROIT, Michigan

"Skip-stop" schedules are doing much to improve mileage for many city bus lines. Decreased traffic and lower speeds have increased the mileage of some busses and trucks on the open road. Operators should take these factors into consideration when they find their vehicles giving more miles per gallon — so as not to ease up on proper maintenance in the belief that the vehicles are running "better than ever" and need less care.

More and more women are being employed as mechanics' helpers with view of making them full-fledged mechanics — and report women are doing an excellent job. Many truck companies which would like to hire women for similar work and training are finding that the one drawback — and it isn't funny — is lack of adequate rest room facilities. Before you put 'em on the payroll — put in a "powder" room!

Office of Petroleum Administration for War is allowing refiners sufficient allocations of antiknock fluid to make civilian "regular" gasolines of at least 72 octane number. This means that no drastic measures, such as use of extra cylinder head gaskets (which reduce power and economy), are needed to lower antiknock requirements of the average commercial car or truck.

Appearance of new wartime tires on market is a tribute to the ingenuity of rubber companies — but does not mean that the nation's tire problems are solved. Operators should beware of optimism. There is still no rubber to burn.

Source of constant amazement to truck operators — and of pride to truck manufacturers — is the way the nation's trucks are standing up in spite of the terrific punishment they're taking in wartime. They're on the road more, in the shop less than ever — yet they keep right on rolling up the miles and delivering the goods for Uncle Sam.

Big problem of preventive maintenance doesn't so much concern the fleets as it does the millions of owners of one, two or three trucks who have never given their units systematic or proper care. U. S. Truck Conservation Corps is trying to get them to see the light — and oil companies may soon launch a special drive to sell the advantages of proper maintenance to non-fleet truck owners.

Special to truck operators: Read your daily paper for news of the thousands of American trucks that are more than proving their sturdiness in the African campaign. These military vehicles in many ways offer a preview of improvements you will probably get in your own equipment after the war.

Something to think about: The cannon shell from a Flying Fortress that blasts down a Jap Zero may travel the last 500 yards on gunpowder — but it travels the first 500 miles on gasoline! Oil is ammunition — use it wisely!

YOUR GENERAL TIRE DEALER IS A

TRUCK TIRE SPECIALIST

He makes a business of

INSPECTING

MAINTAINING

REPAIRING

RECAPPING

TRUCK TIRES

KRAFT SYSTEM KRAFTRED TIRE RENEWING

Look for this emblem on tires recapped by the Kraft System

Let experts who know how take care of your tires

The GENERAL TIRE

MORE THAN EVER

IN WARTIME BUY THE TRUCK TIRE THAT YOU KNOW GIVES YOU MORE QUALITY

- Built to the maximum specifications possible under Government Regulations
- With the same extra strong heat resisting cord always used in the General Tire
- By workmen who have never built anything but the highest quality

COMING? SYNTHETICS, RAYON, NYLON?

The General Tire of the future is well worth dreaming about! Imagine for yourself what new materials and processes may mean—more mileage than you've thought possible, no blowout worries, less air pressure, lighter weight yet more strength . . . the heat problem licked! *True? You'll have to wait to see!* But remember this: General's technicians are today discovering new ways to make rubber *fight* better . . . making tires that fight and fly, tires that haul supplies on the production front . . . gas masks, barrage balloons, pontoons, assault boats and scores of other weapons. And you can be sure the lessons of war will bring you General Tires even farther ahead of ordinary truck tires than the

Free! For Your Drivers!

❶ ❷ ❸

"HOW TO WHIP THI SABOTEURS OF TRUCKIN

A Driver Education Program that brings Results!

❶ **FOLDERS...tell drivers ho save rubber by licking impr load distribution; under-inflat high speed; mis-mating of du**

❷ **GARAGE POSTERS. 21" x 28" postertells the same story for display on driver bulletin boards and service garage walls.**

❸ **DASH STICKERS. 4" x 3½" sti has space to fill in load and flation data, etc., reminds d of need for tire conservat**

Available FREE from General Tire Dealers in Any Quantity Required

FREE FILM — **"How To Do It"** . . . an educational, easily understood, sound slide film on truck tire maintenance . . . available for showing to employee groups. Ask your General Tire dealer for details.

★BALTIMORE WAR STORY★

It was about a year ago. Pearl Harbor was a smarting wound only a few weeks old. America's warplanes had to have piston rings that were a year ahead of anything then in the air.

American Hammered was ready—was actually doing the job. Ever since World War I, A-H rings had been contributing to faster and more powerful planes; had played their part in the establishment of practically every new aviation record and accomplishment. But even American Hammered couldn't make the enormous quantities of aviation piston rings required for United Nations' plane production. No one factory could.

So the leading piston ring manufacturers were invited to the American Hammered plant at Baltimore. A-H threw open both laboratory and factory. Nothing was held back. Patents, methods, processes and even special equipment developed by American Hammered engineers for micro-finishing aviation rings were shared for combined war production.

In the American Hammered research laboratory, A-H engineers continue their development of piston rings that are a year ahead of the planes on the fighting fronts. They contribute to United Nations' air supremacy by finding out how piston rings will perform *before* the rings are made!—A miracle that puts piston ring research on a production basis. A-H is developing tomorrow's automotive history today.

American Hammered
Piston Rings

FOR CARS • TRUCKS • BUSES • TRACTORS

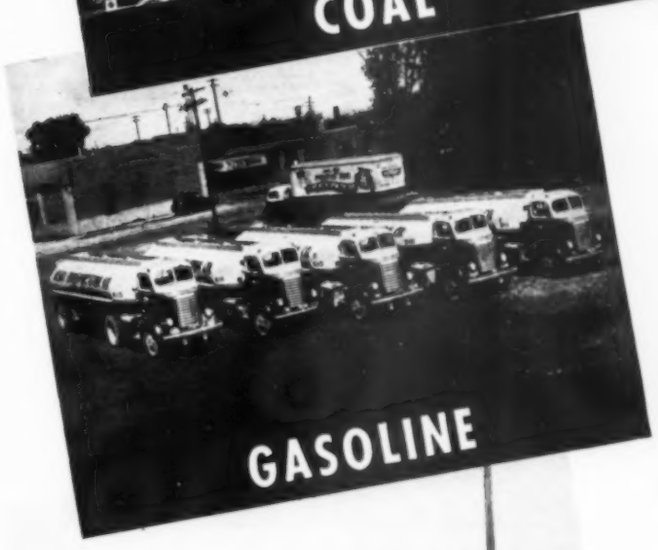
Better by 25 Years of Aviation Engineering

ARMY E NAVY

a KOPPERS *product*

HEIL Quality PRODUCTS

HOISTS-BODIES-TANKS



For hauling that's essential to Victory

HEIL NATION-WIDE DISTRIBUTOR SERVICE

keeps your special-body equipment in tip-top shape

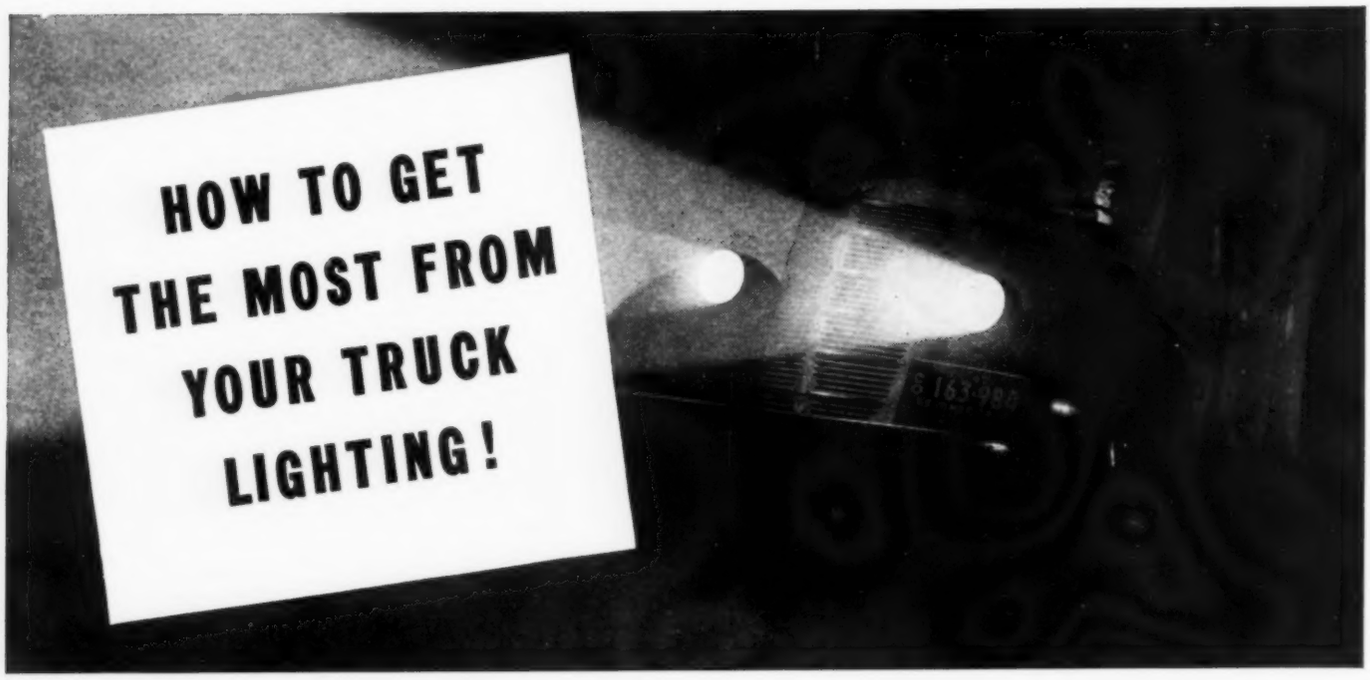
Your important part in the nation's war economy — transporting vital materials such as those illustrated here — calls for the utmost care to keep your trucks running for the duration . . . On special-body equipment—tank trucks, dump bodies, etc.—the quick, easy, certain way to assure such care is to keep in touch with your Heil distributor . . . He's nearby — as part of Heil's nation-wide service facilities. He's equipped — with genuine stock parts and specialized "know-how." He's cooperative—anxious to help you in every possible way . . . Let him make a periodic check-up of your equipment, to supplement your own careful supervision of maintenance. Go to him for prompt, satisfactory repair service. BH-64

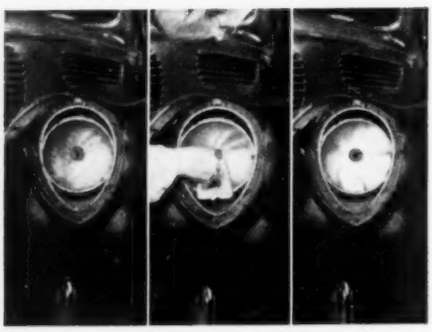
THE HEIL CO.

GENERAL OFFICES · MILWAUKEE, WISCONSIN

HEIL ANSWERS UNCLE SAM'S CALL

. . . and helps the Arsenal of Democracy supply materials for Victory!



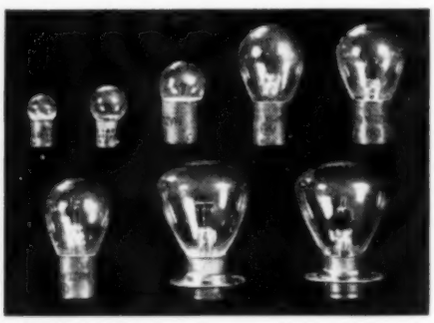


1 AS TRUCKS GROW OLDER, dirty lenses and reflectors steal more and more light—as much as 50% before equipments are three years old. Much of this loss may be regained by cleaning reflectors and lenses on a regular schedule.

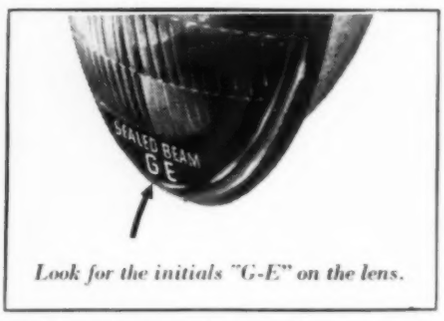
ESSENTIAL DIM OUT DRIVING is tough on drivers. Yet many of them are driving in an unnecessary dim-out resulting from failure to maintain truck lighting properly. They are wasting light because they are not getting all the light possible from their present lighting systems.

In the interest of delivering vital war goods on time . . . safely, here are four things you can do to give your drivers the better light they need to reduce accidents and eliminate delays on the road at night. For details see your G-E MAZDA lamp distributor's salesman or write General Electric Company, Dept. 166-FO-1, Nela Park, Cleveland, Ohio.

2 CONSTANT VIBRATION and road shock tend to loosen head lamps. You can aim headlights accurately and quickly to direct maximum light on the road and minimize glare with an adjustment machine or with a G-E Aiming Screen.



3 BURNOUTS may cause accidents. Check driving, parking, and stop lights for burnouts and replace them with new G-E MAZDA Auto lamps. Your G-E distributor's salesman has a G-E Auto lamp guide showing sizes and types of lamps.



Look for the initials "G-E" on the lens.

4 ON '40, '41, or '42 trucks, or those equipped with Sealed Beam adaptors, be sure to use "all-glass" G-E MAZDA Sealed Beam lamps for headlamp replacements. They are made to *stay brighter longer.*

G-E MAZDA LAMPS

GENERAL ELECTRIC

Made to stay brighter longer

1. Combat team tactics, coordinating the efforts of tanks, infantry and planes, is an important part of the strategy of American Armed Forces. It was also used successfully by General Montgomery in driving Rommel out of Egypt. Teamwork on the largest scale ever conceived by man will win Victory for America and our Allies in the fight for Freedom.

2. A. C. Scott, Vice-President, Geo. F. Alger Co., Detroit, specializes in doing the "impossible." Alger hauled the bulk cement for the Ford Willow Run plant, new Wayne Airport, and other projects. Scott inaugurated 24-hour maintenance—intensive inspection and driver care calling for 100% teamwork between all departments in his "turn on the steam for Victory program."

TEAMWORK WINS! In the armed forces . . . and on the home front, too . . . it takes teamwork to win! Timken's new A.M. (Axle Maintenance) Program tells you how to team up with your operating and maintenance departments to save tires, brakes, axles to insure longer vehicle life, cut costs and save critical materials. Write us today for FREE A.M. aids or talk to a Timken Field Representative — there's nothing to buy.

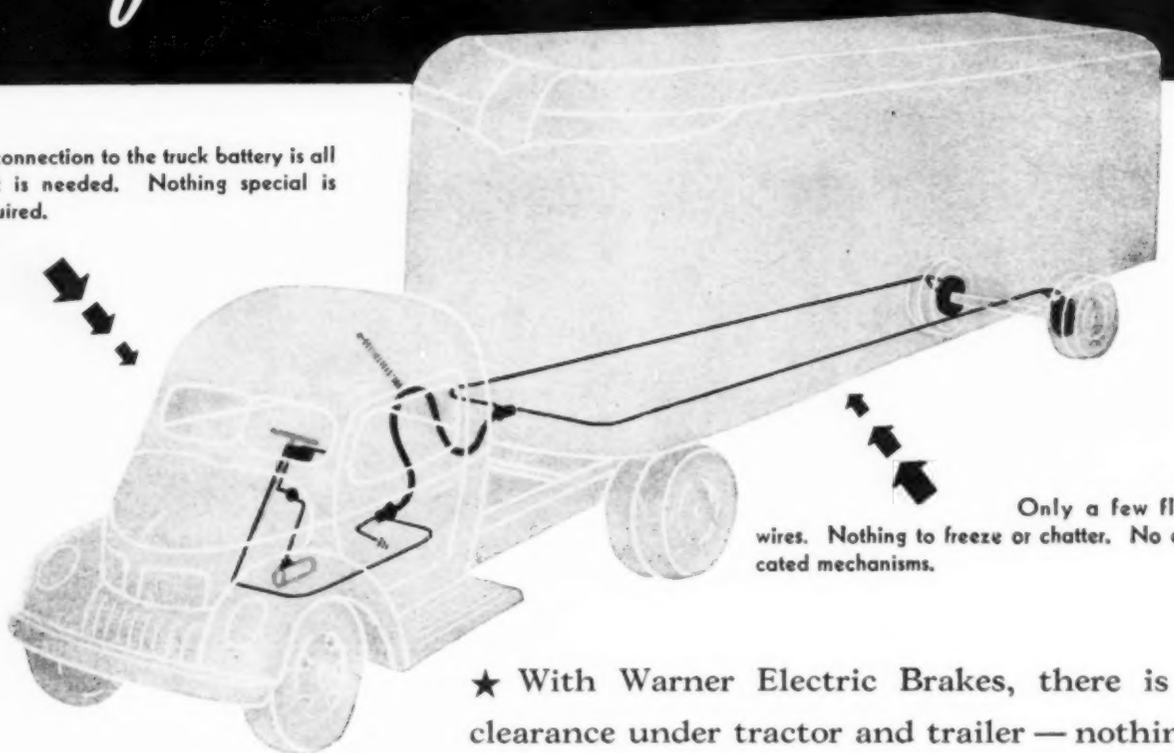
ARMY E NAVY
For Production
"Well Done"

TIMKEN AXLES

THE TIMKEN-DETROIT AXLE COMPANY, DETROIT, MICHIGAN
WISCONSIN AXLE DIVISION, OSHKOSH, WISCONSIN

NO OTHER BRAKE EQUALS THE WARNER ELECTRIC BRAKE *for* SIMPLICITY

A connection to the truck battery is all that is needed. Nothing special is required.



Only a few flexible wires. Nothing to freeze or chatter. No complicated mechanisms.

★ With Warner Electric Brakes, there is full clearance under tractor and trailer — nothing to get knocked off or leak — no exposed braking equipment — no rods to rattle — no tubing to split — no condensation to freeze. Warner Electric Brakes require only a wire to each wheel and will operate under water without short circuiting. Minimum maintenance cost.

PLUGS IN AND OUT LIKE A RADIO

The plug-in cable provides current for brakes, tail light, stop light and running lights.

Right now, the needs of our armed forces come first! However, if you are on the "essential" list we can supply you with brakes.

Warner ELECTRIC BRAKES

WARNER ELECTRIC BRAKE MANUFACTURING COMPANY
BELOIT WISCONSIN, U. S. A.

More Miles from Every Ounce of Rubber

EXTRA ORIGINAL AND RECAP MILEAGE WITH McCREARY TIRES

A Typical Recapping Shop

Trutred Tires, Inc., Pittsburgh distributors of McCREARY TIRES is a typical recapping organization equipped to render complete and efficient tire service.

HARD-BOILED FACTS . . . not big names or big promises . . . but actual over-the-road tire MILEAGE—That's what TRUCK and BUS OPERATORS want these days.

TODAY a tire doesn't go into the scrap heap until every last mile has squeezed out of its tread and carcass. That's not only good business—it's practical patriotism. That's the real reason for buying McCREARY TIRES.

WHY? Because better original construction gives greater mileage in the first place and permits a greater number of recaps with MORE MILEAGE FROM EACH RECAP.

THE RECAPPERS' PART

Long before the present rubber crisis wise fleet operators large and small were cutting tire cost by recapping. Long before Pearl Harbor McCREARY TIRES were sold exclusively through dealers who were recognized as high-quality recappers. McCREARY KNOWS WHAT THE RECAPPER WANTS BUILT INTO A TIRE! Cord construction that prevents heat—materials that are the best regardless of cost—no short-cuts that save time but cut quality—no skimping anywhere.

The recapper was not appreciated fully until lately but today the nation owes him a tribute. McCREARY TIRES plus the service of the recapper who sells them are an unbeatable combination to secure that last mile of service.

McCREARY TIRE & RUBBER COMPANY
INDIANA, PA.

McCREARY
"Built for Longer Service"
TIRES

FOR EXCELLENCE

MEN OF TYSON PROUDLY WEAR

The Army-Navy "E"

WE AT TYSON are proud to wear the Army-Navy "E" and fly the burgee—award of excellence in production of war materials.

Long before Pearl Harbor, Tyson was turning out "tools of war." Since then, we've doubled and redoubled plant facilities and production.

In addition to heavy-duty roller bearings for Army and Navy gun mounts and for vital transportation and industrial uses, Tyson craftsmanship produces precision parts for aircraft. Intricate engine suspension units and bearing liners are speeding production of more than half of America's fighting planes.

* * *

To the men in the armed forces, Tyson pledges . . . "enough—and soon enough."

Tyson HEAVY-DUTY BEARINGS and PRECISION AIRCRAFT PARTS

TYSON BEARING CORPORATION ★ MASSILLON, OHIO

ON-THE-DOT TIMING!

Offic. U. S. Navy Photo

No time to lose in the air or in your shop!

Truck operators everywhere use American Brakeblok's Brake Lining Advisory Service to step up operating efficiency in getting supplies on their way to the fighting fronts. This Advisory Service adapts one or more of three specialized types of heavy-duty brake linings to your particular units, helps increase brake lining mileage and reduces drum wear. To save time in your shop, ask about our Advisory Service.

American Brakeblok Brake Lining is quickly available everywhere through the nation-wide NAPA system of warehouses and jobbers.

American Brakeblok offers you a comprehensive line of fan belts, curved and straight radiator hose, woven and molded clutch facings.

THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY
American Brakeblok Division, Detroit, Michigan

American Brakeblok
BRAKE LINING

Stopper the Pup is American Brakeblok's nationally known advertising character, appearing before 15,000,000 magazine readers every month!

They're worth more than money to me

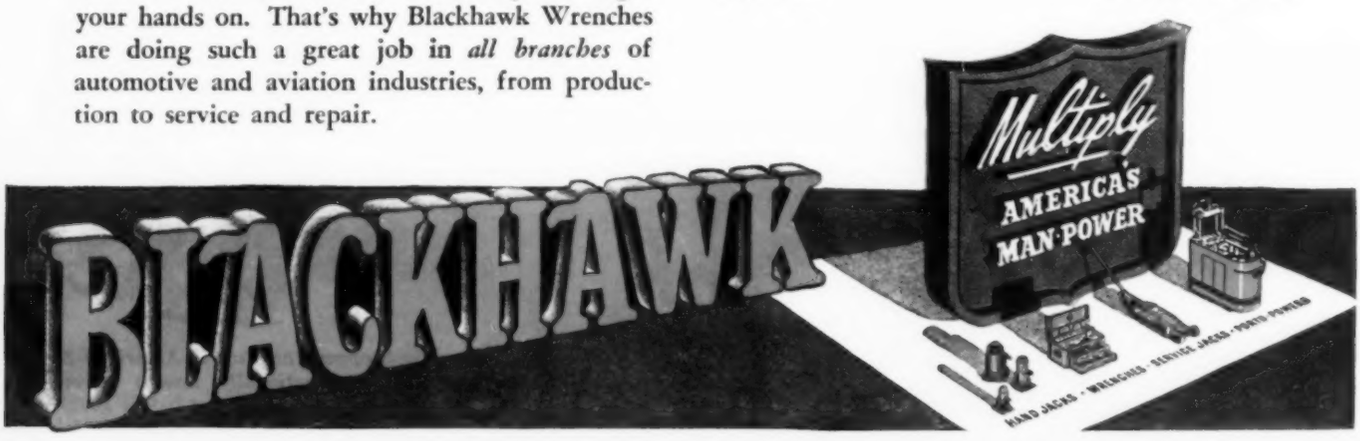
"Well, I don't actually put my Blackhawk Wrenches in the safe at night, but I do keep 'em under lock and key. Today, these Blackhawks of mine are worth many times their original cost in the work they turn out and the profits they earn."

Man, you said it! MODERN Blackhawk Wrenches are rugged, speedy and dependable. Talk about guts — say, they're built to turn the toughest jobs into softies. Packed with exclusive features that make 'em the smoothest workin' tools you ever got your hands on. That's why Blackhawk Wrenches are doing such a great job in *all branches* of automotive and aviation industries, from production to service and repair.

Sure, wrenches are scarce these days — but your jobber may still have some Blackhawks in stock. Or, if you are in "high priority" war work — your rating can help your Blackhawk Jobber assure reasonable delivery.

See your Blackhawk Jobber Salesman — or write us for free 48-page "HANDY GUIDE," giving helpful wrench data.

A Product of BLACKHAWK MFG. CO.
Dept. W723 Milwaukee, Wisconsin



FLEET OWNER

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

Vol. 30, No. 2—FEBRUARY, 1943

ODT No. 21 TO STAY

● Should you be one of those optimistic souls who entertains the notion that ODT Order No. 21, together with its Certificate of War Necessity plan, is destined to follow the route of other "noble experiments", i.e., discontinued, scuttled or just forgotten about, Joseph B. Eastman, Director of ODT, suggests that you make up your mind to get rid of any such ideas pronto. . . . Speaking before the War Conference of the National Council of Private Motor Truck Owners, held in New York last month, Mr. Eastman warned against any undue optimism of this kind, declaring that Order No. 21 is "proceeding as planned" and that ODT's experience with it thus far is just about what they expected in the first place. . . . Mr. Eastman placed special emphasis on the fact that the success of Order No. 21 thus far (or the lack of it) had no bearing on the resignation of John R. Turney, Director of ODT's Division of Transport Conservation, and reputed to be the father of Order No. 21; also that ODT is not "backing down", as some press commentators have indicated they might be. . . . Director Eastman really let down his hair when he said that Order No. 21 was conceived principally because of the demands of OPA, which needed some sort of a yardstick with which to gauge fuel consumption of commercial vehicles, in order to properly implement the gasoline and tire rationing programs. Since there was no complete listing of commercial vehicles, he said, which gave factual data about their operation, and no compilation of the operators of same—when, where and how—*some* form of actual contact with these operators was needed, and the Certificate of War Necessity plan was the result. . . . Mr. Eastman reiterated his oft-repeated statement that so long as it is humanly possible, no operators will be put out of business and that ODT's aim is to keep every kind of "essential" operation in existence. . . . As to the complexity of the application blank used, and its accompanying "volume" of instructions, Mr. Eastman tended to justify this by stating that it was virtually impossible to issue special application forms for all the different industries using trucks, and that a "standardized" blank that could be used by all operators was the only answer. . . . Mr. Eastman also repeated his warning that trucks and buses would have to get by on less than half the rubber which they used in 1942 and that ODT's final goal is a total mileage reduction of as much as 40 percent, if possible, instead of the 25 percent mileage reduction which is now supposed to be the order of the day. . . . In order to assist operators further in keeping going, consistent with the utmost in conservation, ODT is now in the process of organizing "maintenance committees" in each of its 150 district offices, the purpose of which will be to contact operators and keep them informed as to the best methods of keeping them rolling—conservation, reclamation, parts salvage and such. . . . Another of Mr. Eastman's hopes is to be able to keep replacement parts and supplies for trucks and buses out of the "priorities" classification, and ODT's aim is to facilitate the acquisition of needed parts by truck operators, with a minimum of red tape, as long as it is possible to do so. . . . Further, ODT promises to try to pry away an additional number of new trucks from WPB this year, for essential civilian purposes; which means, apparently, that the release of the manufacture of more new trucks and trailers for civilian use, may be just around the corner. . . . But keep your fingers crossed on *all* of these points; they're likely to be changed even before this report comes off the press.

THIS is a tank destroyer, as built by White. . . . It mounts heavy guns and can out-shoot the average tank. . . . Because of its speed and maneuverability, combined with intense firepower, this type of combat unit is giving a good account of itself on the world's far flung battlefields. Because it can operate over any kind of terrain, its use is unlimited. . . .

●

THE WHY OF IT ALL

● Because such caustic criticism has been made of ODT's record-keeping requirements in connection with the Certificate of War Necessity mandate, ODT hastens to reassure us that all of this paper work is really *needed* for some good purpose. We quote from a recent bulletin: *"The records and reports required under General Order ODT No. 21 are for two purposes: (1) To furnish necessary material to enable estimates of the requirements of the motor transport industry; and (2) To measure the extent of compliance and for enforcement purposes".* . . . The ODT and other governmental agencies are continually being called upon to furnish estimates as to the needs of the motor transport industry for critical materials required to maintain that industry. The need for material of this nature will increase, of course, as the situation becomes more acute. . . . Material previously available

The Editor's Column » »

(Continued from Page 29)

has been entirely inadequate, as we all know, and ODT officials feel that the data required under Order No. 21 will go a long way towards providing the necessary data for this purpose. . . . So, gentlemen, let's struggle along with it a bit further, with the hope that the simplification now under way will really relieve what has developed into a *real* burden to many operators. . . . ODT is learning fast—from experience!

●

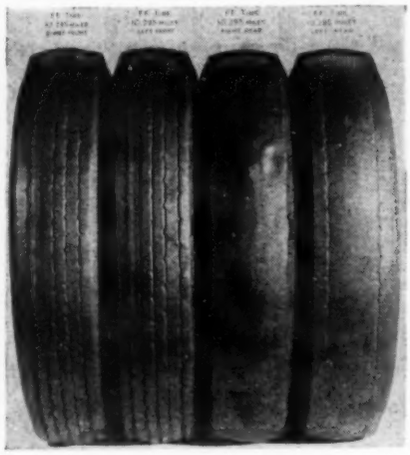
TO SIMPLIFY REPORTS

● ODT's Division of Motor Transport, as we told you last month, is warming up to the idea of relaxing its requirements in the matter of paper work necessary in connection with Order No. 21. . . . ODT is presently engaged in reviewing the general subject of these records and reports, with a view to simplifying them and better adapting them to special types of operations. . . . As its first step, ODT has gotten up a sample set of the forms currently used, on which are indicated certain proposed changes in the records required and the manner of reporting. . . . These, as we understand it, are being circulated among leading fleet operators, asking for suggestions and other comment. . . . Many changes are indicated and lots of items formerly required to be reported are slated for the axe. . . . So far as single-unit operators are concerned, the requirements with respect to the weekly record on the reverse side of the Certificate of War Necessity are proposed as unchanged, except that only the total units carried need be shown, rather than the segregation between inbound and outbound. . . . On the fleet records, the proposed changes and eliminations are *much* more numerous and we'd advise all fleet men to get in on this, asking your local ODT district office for a copy of the proposed changes. . . . Make sure that you put in your two cents' worth, now that you have the opportunity!

●

EARLY SIMPLIFICATION

● One of the first attempts at simplifying the great amount of paper work needed to be done by fleet operators in connection with ODT Order No. 21, was an amendment made more than a month ago, but which, somehow, escaped our notice. . . . According to what we have been able to learn, fleet operators (3 or more trucks) are relieved of the burden of posting any of their records on the backs of their Certificates of War



HERE'S what happens when you don't rotate them. . . . All four "war-tires" went 10,295 miles, but were never driven over 35 m.p.h. and were never rotated. They are: r.f., l.f., r.r. and l.r. . . .

Necessity, the only thing now needed to be recorded on the certificate itself being the last column, which calls for a record of the tire inspections. . . . However, all of the data (weekly reports as to miles operated, gallons of fuel used and tire replacements) must be kept in your office, available to any ODT inspector at all times. . . . A later amendment relaxed these requirements still further, exempting *bus* operators from keeping *any* records on the back of each certificate, even eliminating the tire records. . . . It is to be distinctly understood, however, that this latter exemption applies at present only to *bus* operators who maintain tire records (in their offices) showing brands, serial numbers, wheel positions, date installed and removed, cause of removal, size, type, accumulated mileage, etc. . . .

Our guess is that before long, *no* records will need be kept on the back of the certificate itself, provided that all required data is kept in your offices, where they will be available to ODT inspectors at all times. . . . Just watch and see.

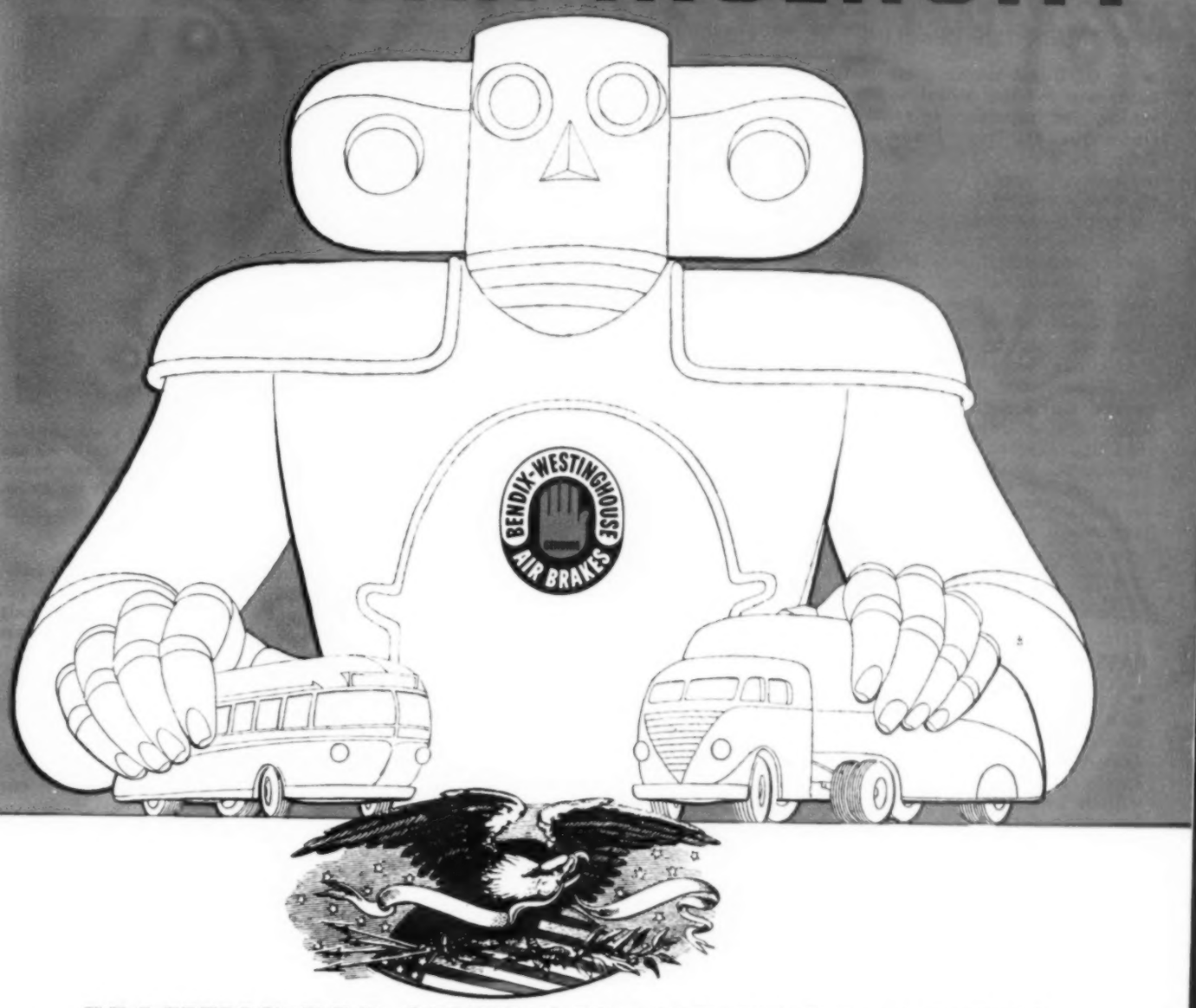
●

GET ENOUGH GAS?

● Truck operators by this time either have sufficient fuel allotments after using up their temporary Transport rations which were issued to tide them over through January 31, or else are working on an "adjustment" basis, with enough fuel to carry them through to the end of March. . . . It is well to remember, however, that the full application of ODT Order No. 21 is now in effect, and that it has *not* been extended to March 31, as many people imagine. . . . ODT field offices have been instructed to exercise "discretion" in handling appeals and if, pending the issuance of your Certificate of War Necessity, they have given you approximately what you asked for in the way of gasoline, bear in mind that when your final Certificate is issued, it will automatically penalize you for any gasoline which you got, to which they feel you were not entitled. . . . In other words, if evidence of waste mileage exists, the burden of proof will rest upon you, and if you can't come through, the extra gas will be deducted from your allotment for the balance of the year. . . . The thing to do is to get your Certificate corrected as promptly as possible, and know where you stand. ODT Order No. 21 has *not* been postponed to March 31.

STANDARD Oil of Indiana is cooperating with Uncle Sam by making rolling billboards of some of its tank trucks, thus promoting the sale of War Bonds in the Chicago and midwestern areas. . . . On the back of the unit is painted, in color, the "Minute Man" encircled in stars, which as you know, is the official U. S. Treasury Department War Bond insignia.

AMERICAN INGENUITY



. . . MAKING BIG ONES OUT OF LITTLE ONES

Bendix-Westinghouse is proud to continue to serve an industry whose multiplying problems merely spur incentive ★ So it is, when the Transportation Industry found itself unable to procure the heavy duty chassis formerly employed, an old order was reversed. Thus, today we find them "Making Big Ones out of Little Ones." Elongated chassis, special gear ratios take care of carrying capacity and power and genuine Bendix-Westinghouse Air Brakes traditionally answer the control problem ★ Not content with this, inspired operators everywhere have taken advantage of the modernizing potentialities in genuine Bendix-Westinghouse Air Brakes in rehabilitating units which might otherwise have slipped quietly from service ★ As long as American Ingenuity, genuine Bendix-Westinghouse Air Brakes and Air Control Devices can team as they have in these days of tribulation, you have every right to expect the great things transportation has in store for you when the current strife has been concluded ★ Your authorized Bendix-Westinghouse Distributor is the headquarters for every control problem . . . Consult him regularly.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
ELYRIA, OHIO

AN ORGANIZATION WHOSE UNDIVIDED EFFORT AND COMPLETE RESOURCES

The Editor's Column » » (Continued from Page 30)

NEW TRUCK TIRE DEADLINE

● ODT last month postponed the final date for the initial commercial vehicle tire inspection as required by Order No. 21, from January 15 to February 28. . . . After the initial inspection is made, the vehicle must then be presented for regular tire inspections every 60 days or every 5,000 miles, whichever occurs first. . . . If the tire inspector finds the vehicle's tires in good condition, he endorses the Certificate of War Necessity. . . . Certificates which do not have this valid endorsement cannot be used to obtain gasoline ration coupons. . . . Moreover, Order No. 21 prohibits the operation of a commercial vehicle, unless the tire inspector has certified that all reasonable and possible adjustments, repairs or replacements necessary to assure maximum conservation of the vehicle's tires have been made. . . . Aside from the postponement, the other details given on page 44 of our January issue are still good.

●

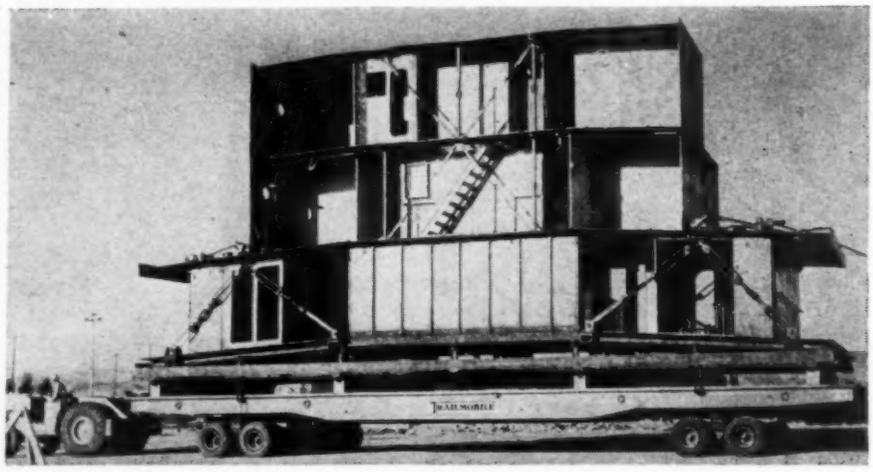
PASS. CAR TIRE INSPECTION

● The compulsory tire inspection plan for *passenger-cars* has been revised. . . . The new ruling extends the January 31 deadline for the first inspection, and subsequent examinations will be less frequent, with three different deadlines. . . . All holders of "A" books now have until the end of March for their initial tire inspection, after which inspection must be made once each six months. . . . Holders of "B" and "C" books as well as those fleet cars with bulk coupons, must get their first tire inspection by the end of February. After that, inspections for "B" book holders will be necessary once every four months, while those with "C" books and bulk coupons must have their tires inspected every three months. . . . The only passenger-cars exempt from such inspections are those not registered, those not used on the highways or streets, and those not propelled by gasoline engines. . . . Motorcycles, too, are excepted from these regulations. . . . All tires to be inspected must be mounted on the vehicle, according to the regulations.

●

FORGET UNNECESSARY REPAIRS

● Although we should be the *last* ones to tell you *not* to make repairs, such as those in the "appearance-maintenance" category, for example, ODT thinks differently. . . . Here's what they suggest: *"(1) Put unessential repairs off until after the war; make only those repairs which are necessary to the safe operation of your vehicle, as well as those which will prolong its mechanical life. (2) Have essential repairs made as early as possible, as prompt repair will help conserve parts and mechanics' time later."* . . . What ODT really means is than neither the manpower nor the supplies can any longer be spared to repair bent fenders, replace radiator grilles, or do other "unnecessary" repair work. . . . Along with its suggestion, ODT stressed the value of preventive maintenance, periodic lubrication and all of those things that we have been "preaching" about for many years. . . . We don't know what fleet men's reactions to this latest edict will be, especially among those fleets where "appearance-maintenance" is a factor in safety, sales and intelligent operation. . . . But that's what ODT says, so help us—and we are here merely to pass along their rulings.



WORLD's biggest trailer?. . . . Its bed is 20 x 60 feet and it will transport a concentrated load of 150 tons. . . . What's it carrying now? A complete section of the "house" for one of Henry Kaiser's ships. . . . Sections are prefabricated in industrial plants and trailers like this one transport them complete to the ship's ways. . . . Trailmobile built the trailer.

THIS is "Miss Victory", winner of a nationwide contest sponsored by the Hearst newspapers. . . . She's Barbara Ann Clark, and is employed on machine gun production at AC Spark Plug Div.

●

RE: SPECIAL DELIVERIES

● ODT's ban on special deliveries does *not* apply to local common carriers engaged only in call-on-demand service, a ruling of its general counsel pointed out recently, in an interpretation of General ODT Order No. 6. . . . The ban on special deliveries, ODT officials explain, was designed to prevent carriers from making "luxury service" trips in addition to the trips made in the course of their regularly-scheduled delivery services, but was *not* designed to interfere with the operations of carriers not engaged in such services. . . . The interpretation also pointed out that under the order, only one delivery a day may be made from the same point of origin to the same point of destination, even though it were intended to use the services of another carrier for a second delivery. . . . At the same time it was explained that the order does not prohibit a carrier from maintaining more than one regular scheduled delivery service a day over the same route, provided not more than one delivery is made from the same point of origin to the same point along the route. . . . Under ODT Order No. 17, contract and private carriers also are prohibited from making more than one delivery a day from the same point of origin to the same point of destination, and also from making any special delivery, defined by the order as "a delivery other than one made in the course of a normal delivery service."

MORE THAN A MILLION MILES · and Still Rolling

KEEPING TRUCKS IN ACTION... NOW OR IN NORMAL TIMES... DEMANDS THE BASIC QUALITY THAT MAKES THIS KIND OF PERFORMANCE POSSIBLE

Veteran of more than a million miles—and still "on the road" making it's regular hauls—that's the service record of this FWD, owned by Clintonville Transfer Line, Clintonville, Wis. Built in 1933, it has performed continuously since, and is now powered by its third engine—with better than 400,000 miles on each of two previous engines.

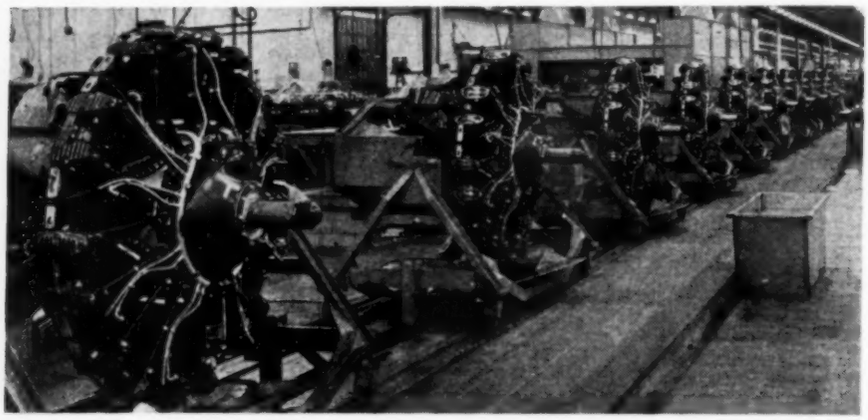
This is another of many case histories in the FWD files all testifying to FWD's quality and capacity to haul longer for less—in normal as well as unusual times—in motor transport, highway service, public utility, oil fields, and other services demanding unusual truck performance. And now when wartime truck operation demands every last mile, FWD owners have the advantage of basic, high quality design and construction inherent in FWD's true application of the four-wheel-drive principle.

Keep Your FWD's Rolling—
No Matter How Old—
With FWD Service

FWD
TRUCKS

THE FOUR WHEEL DRIVE AUTO COMPANY

The Editor's Column » » (Continued from Page 32)



THESE are Studebaker-built "Cyclone" engines which have just returned to the assembly department from the test cells and are now ready for shipment. . . . Studebaker is said to be the largest producer of aircraft engines outside of the aviation industry. . . . These engines are built under license from Wright Aeronautical Corporation—no military secret.

MUST SIGN A RECEIPT

● Under ODT Order No. 21, truck operators are required to sign a receipt giving their name, address and Certificate of War Necessity number to suppliers when purchasing gasoline, tires, tubes or replacement parts. . . . Suppliers are required to render invoices in duplicate, one copy going to the purchaser and one copy being retained in the supplier's file. On mail or telephone orders where it is impractical for the purchaser to sign the receipt in person, the supplier may accept verbal certification of the purchaser's name, address and War Certificate number. . . . But this information must be secured in *all* cases. . . . That is the law!

●

UNLICENSED VEHICLES EXEMPT

● A recent ruling made by ODT exempts unlicensed and limited-licensed commercial vehicles which cannot be operated over highways to get to tire inspection stations, from the tire inspection provisions of ODT Order No. 21. . . . Such vehicles, however, must be inspected if the owner or operator's personnel has been designated as a tire inspector, or is qualified to become one. . . . That's the way *we* heard it.

●

EMERGENCY REPAIR PRIORITY

● The twelve regional directors of WPB are now authorized to approve, countersign and issue individual preference ratings for "emergency" repairs, up to and including AA-1. . . . These regional directors may also authorize deputy directors to perform these functions. . . . In addition, the 110 district offices of WPB may now grant ratings for emergency repair, up to and including AA-2X. . . . It is understood, of course, that no preference ratings are required in order to secure motor vehicle replacement parts, and the WPB's definition of "emergencies" is not entirely clear. . . . However, if you have *anything* that needs repair in an emergency, WPB regional directors are duty-bound to help you get the material for it, if it is considered necessary to the war effort, and if it does not exceed $500 in value.

●

CAN'T CHARGE YOU FREIGHT

● If you have your recapping done through a dealer who does not possess his own equipment, the dealer may *not* pass on to you the transportation charges between the recapping plant and his place of business, OPA recently ruled. . . . He *may* charge you, however, for picking up and delivering the tires to your place of business, provided that this was his custom on or before January 9, 1942—the base date of the ceiling prices on recapping.

NOTE the decal of the American flag, in front of gunner at left. . . . Meyercord sent us this picture to show how they identify our tank-destroyers so that the Yank's won't shoot 'em up. . . .

REPAIR RATIONING?

● ODT has recently requested garages and automotive servicing establishments to "ration" their facilities and mechanics' time and to give *precedence* to essential transport units. . . . Director Rogers admitted that the parts situation is acute and may become worse before it gets better, but voiced the prediction that a decided improvement will take place when the Controlled Materials Plan gets into full operation. . . . The CMP is a plan devised by WPB to assure adequate raw materials and manufactured products for essential civilian use, as well as for the armed forces and our allies. . . . "Essential highway transport—both of merchandise and passengers—must be maintained, repaired and kept in service," Mr. Rogers said.

●

DRAFT-DEFERRED MECHANICS

● The War Manpower Commission has drafted an order which would place truck and automobile mechanics in a draft-deferment class, along with other types of war workers. . . . We understand that the order has already been sent out to all local Selective Service boards, and that it includes car and truck mechanics, body repairmen, electricians and other specialized workers in automotive maintenance. . . . The deferment, of course, is not permanent, but like all other deferments, only until such time as new substitutes can be trained. . . . Fears are expressed, however, that the order did not come soon enough, and doubt is held that operators can keep essential equipment rolling because of the acute manpower shortage.

●

TRUCK RATIONING TO-DATE

● A total of 1,217 trucks, trailers and miscellaneous vehicles was released under the truck rationing program during the week ending January 16, the WPB Automotive Division announced as this issue went to press. . . . Civilian users and holders of Government Exemption Permits received 208 light, 636 medium, and 191 heavy trucks, 136 trailers, and 46 miscellaneous vehicles. . . . The miscellaneous vehicle category includes station wagons, ambulances, hearses, etc. . . . Since the rationing program became effective March 9, 1942, a total of 99,775 vehicles of all types has been released. This total includes 22,458 light, 52,795 medium, and 12,294 heavy trucks; 7,144 trailers, and 5,084 miscellaneous vehicles.

YOUR McQUAY-NORRIS JOBBER SAYS:

"YOUR TRUCKS ARE IN THIS WAR, TOO!"

Fleet owners—you are doing a big job these days keeping your trucks and cars rolling. Your best friend is the McQuay-Norris jobber. He supplies you with Altinized Engineered Set Piston Rings and other precision parts backed by 33 years' experience. Then there's McQuay-Norris Engineering Service—practical guides and helps that take all guesswork out of every job and give you greater mileage at lower cost!

For real cooperation, call or visit your McQuay-Norris jobber first!

McQUAY-NORRIS
ALTINIZED
Engineered Set
PISTON RINGS

McQUAY-NORRIS

PISTON RINGS • PISTONS • PINS • VALVES
BEARINGS • SLEEVES • PUMP PARTS
BOLTS • BUSHINGS • SILENT-U SHACKLES
WHEEL SUSPENSION PARTS

TIME TESTED McQUAY NORRIS AUTO PARTS PROVEN IN SERVICE

The Editor's Column » »

(Continued from Page 34)

VOCATIONAL TRAILERS EXEMPT

● Certain special types of trailers are exempt from *carrying* the Certificate of war necessity, although the certificate itself *is* required, and should be kept with the other vehicle records at the operator's place of business. . . . Among the types of trailers which are exempted from carrying the certificate are platform trailers, pole trailers, house hauling trailers, boat trailers, electric line tool trailers, and other rubber-tired trailers on which it is impractical to carry or mount the certificate.

●

"ALL-THREE" AVAILABLE AGAIN

● Sale of 4-door hard-topped Chevrolet, Ford and Plymouth sedans to civilians who can get rationing certificates was resumed last month. . . . There was a temporary ban on such sales since last August, in order to hold the limited supply intact, while the Army and Navy filled their requirements. . . . Now even you and I can buy one—*if* we have a certificate.

●

TO CUT TRAFFIC LIGHTS?

● Six ways to speed up traffic under wartime conditions, saving rubber and fuel, were suggested at a conference of experts called by ODT. . . . All agreed that failure to adjust street traffic controls in line with changed conditions has created a needless waste of time, gasoline and rubber. . . . Specific recommendations are being made to the ODT as follows: *(1) Eliminate unnecessary traffic signals. (2) Improve signal timing. (3) Improve signal coordination. (4) Shut signals off in off-peak hours. (5) Place traffic officers on fixed posts. (6) Establish war transport routes.* . . . More than 20 traffic authorities attended and are drawing up a proposal to ODT.

NEW MODEL?. . . . This unit, operated by the Boston Herald-Traveler, boasts such features as knee-action, engine-in-front, exhaust-in-rear, closed cab, fifth-wheel, transverse-springs, dual drive-shaft, etc.

●

PRIORITY FOR OIL FLEETS

● Fleet operators in the oil business will be interested in this announcement. . . . Higher preference ratings on the delivery of materials required for the production, transportation, refining or marketing of petroleum were assigned recently by WPB under provisions of Preference Rating Order No. P-98-b. . . . Preference ratings of A-2, A-1-a or AA-2X now apply, and this includes, among others, materials necessary for repair, maintenance and operating supply purposes, which WPB legal experts have recently interpreted as including materials for vehicles and garages, as reported in our January issue—p. 28 and 74.

●

TUBE-LESS TIRES?

● Many requests have come to us asking our opinion of the new idea in so-called tube-less tires which have received much publicity of late. . . . Not being tire experts, we put the question up to tire engineers. Here is a quotation from one who should know what he is talking about: *"Home-made tube-less tires may work temporarily, but will lead to early ply separation. Carcasses now in use were not designed to hold air without a tube. Pressure forces air into the carcass when used this way, causing early separation."* . . . The best advice we could get from tire engineers is *"Don't try it!"*

●

500 MORE TANK TRAILERS

● Production of 500 additional semi-trailer petroleum tanks to help relieve the oil transportation shortage was provided for by WPB recently. . . . This is in addition to a previous amendment which permitted the manufacture of 300 tank trailers, making the total authorized amount to 800. . . . Each of these tank trailers will haul 4,000 gallons or over, and every effort is being made to have them produced promptly. . . . The WPB order authorizing these, also provides that the Director General for Operations may specifically authorize further production of trailers in such quantities, of such types and within such periods of time as he may determine.

"PRAISE the Lord. . . . and Pass the Blow-Torch". . . . Rev. O. J. Briggs, a minister for 20 years in Ft. Wayne, is now a welder in Fruehauf's plant there. . . . Recently he did a full shift and also preached two sermons.

GOOD OLD DAYS. . . . This "Pak-Age-Car" works for air transport, but our guess is that by now, most of this type of transportation is for official Army, Navy and other government use. . . . This picture was snapped at Burbank, Calif., where United Air Lines has a commissary. Delivery of piping-hot food in insulated containers is a "natural" for this type vehicle.

CLEAN as a Hound's Tooth...

Can you say that about YOUR ENGINES?

If you can, you've gone far in solving the most important part of Preventive Maintenance. And if you can't, you can find the right answer *now* in National SAVIT Service.

National SAVIT Service includes thorough cleaning and freeing of piston rings, pins and valves—in fact all moving parts. It also cleans all oil lines, protects bearings and removes foreign substances from the crankcase.

Write today for free samples of National Periodic Inspection Service forms . . . and with them the complete story of National SAVIT Service.

NATIONAL-IZE YOUR FLEET!

NATIONAL SAVIT SERVICE

NATIONAL EN-AR-CO MOTOR OILS and LUBRICANTS

NATIONAL WHITE ROSE GASOLINE

THE NATIONAL REFINING COMPANY • CLEVELAND, OHIO

Cleveland • Indianapolis • Chicago • Peoria • Omaha • Kansas City • Memphis

East of Ohio . . . The Globe Refining Company, Cleveland, Ohio

NEPTUNE STORAGE
NEW ROCHELLE, N. Y.

TRUCK-A-MONTH RECORD

MONTH	YEAR	TRUCK NO.
DEC.	1942	24

DATE	SPEEDOMETER				SERVIS RECORDER TIME				GAS GALS.	OIL QTS.	NUMBER OF		WORK SCHEDULE			
	MILEAGE FINISH	MILEAGE START	MILES RUN	AVG. M.P.H.	TOTAL TIME	RUNNING TIME	LOADING TIME	UNLOADING TIME			TRIPS	STOPS	TICKET NO.	TICKET NO.	TICKET NO.	REVENUE
1	23168	23109	59	18.2	7:00	3:15	2:00	1:00	17		1	1	1945			50.00
2	23184	23168	16	12	5:00	1:20	1:45	1:30			1	1	2004			36.00
3		23184			IDLE											
4	23250	23184	66	17.6	8:15	3:45	:45	2:45	15	3	1	3	2198	2206	2213	58.00
5																
6																
7																

THIS form provides all data required by ODT Order No. 21; it also gives the fleet a good picture of each truck's monthly operation.

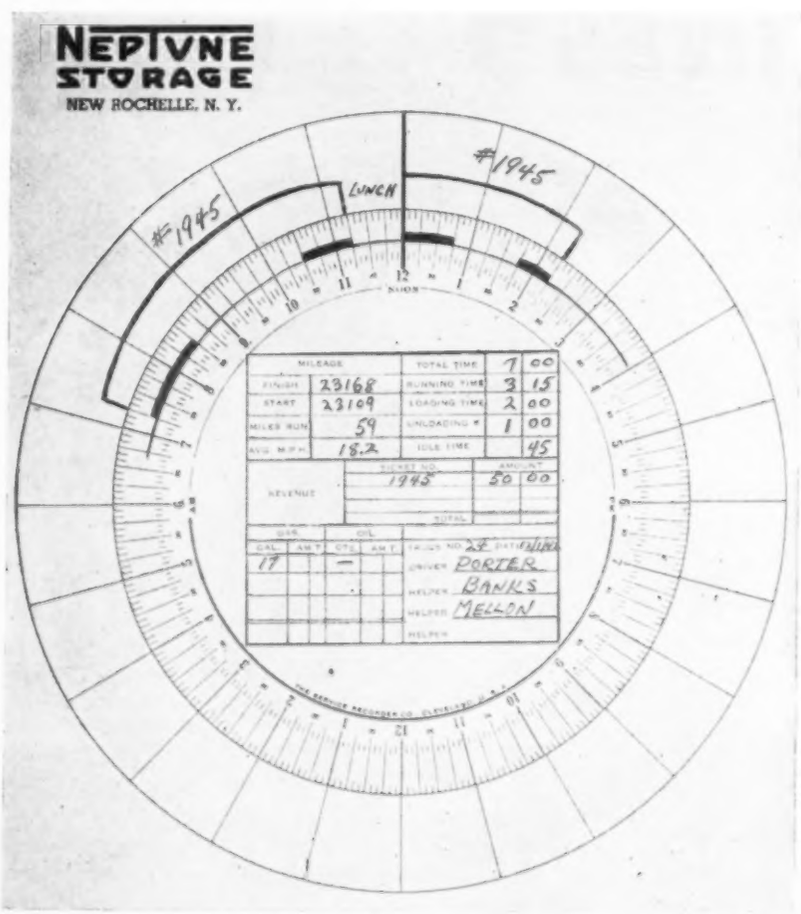
HOW WE COMPLY

(OFFICE OF DEFENSE TRANSPORTATION'S

HOW one fleet operator is turning his ODT-compulsory fact-gathering to advantage—through better operational control and a closer check-up on the productive and non-productive hours of his vehicles. . . .

WHEN the Office of Defense Transportation announced its new Order No. 21 several months ago, calling for Certificates of War Necessity and asking for an unprecedented amount of operating information with regard to daily mileages, stops, loads carried, etc., what looked like a literal "avalanche" of statistical requirements caused our entire organization (and probably yours, too) to scratch its collective head and holler "Holy Smoke!"

Getting such an amazingly complete and intricate amount of necessary data together, it appeared to us, was going to take a "full-time" job—and no fooling! What about the impending manpower shortage caused by Selective Service and the migration of workers to war industries? How were we going to get such data to begin with? And, assuming that we *were* successful in getting it, what were we going to do with it? And how were we going to keep from being swamped with figures?



DRIVER'S daily report (square) and data from recorder chart are brought together like this; then all totals are posted to the large record sheet shown at top. . . .

At the outset, we'll admit that the problem looked perilous and we, along with others, said "It can't be done!" However, we soon stopped scratching our heads and started to scratch around in other directions. The solution, we found, had been right with us all the time; but we didn't realize it. In fact, it has gone still further; it has enabled us to turn such data—fact-gatherings requested by ODT—into the nucleus of an excellent system of operational-control which we now use in more ways than one for a perpetual, intelligent analysis of the operation of our fleet.

As is probably obvious by now, Neptune Storage, Inc., is a storage warehouse, just as its name implies, operating a fleet of 28 vehicles—straight trucks, tractor-trailers, etc. Because of the peculiar nature of this business, we had some time ago concluded that it was good policy to equip each vehicle with a trip recorder, so that we would have a continuous check on our drivers and vehicles.

When the Office of Defense Transportation's record-breaking (record-keeping) mandate came along, the first thing we looked into was our daily rec-

THIS little device makes it easy to total running and standing time, regardless of the hours or minutes involved. . . . It aids the fleet in transcribing such data to the daily work record chart shown below. . . .

with ODT RECORD REQUIREMENTS

ORDER NUMBER 21 IS A HELP (NOT A HINDRANCE) TO OUR RECORDS SYSTEM)

By Ben F. Kirschenbaum,

Vice-Pres., Neptune Storage, Inc.,
New Rochelle, N. Y.

ords, as provided by the trip recorder charts. Heretofore these were used principally to check on drivers and as sort of an informal record of truck operation. When we first bought them, we never dreamed that they would come in so handy under government-regulated wartime operation. But after ODT Order Number 21 came along, we found that the few simple forms which we were already (sometimes) using in connection with our trip recorder charts, would give us *just* the information we needed for our ODT quarterly reports.

First, as most of the readers of this publication are well aware, these trip recorders supply us with a daily, chronological record of each truck's running time and standing time. In addition to that, each driver is now supplied with a daily report sheet, on which he indicates the time spent on every job, designating each job by the order number. Thus, in the illustration in the lower left-hand corner of the first page of this article, Number 1945 is the job number, and the form illustrated is the driver's daily report.

These daily report forms are printed up with a fac-simile of the recorder chart, so that the driver can indicate the time spent on each job by following the diagram and marking the hours and minutes, as shown. He also marks down the time that he and his crew stopped for lunch; his speedometer mileage (in the squared center) at the beginning and at the end of each day; and the number of miles run, also obtained from the speedometer. The average miles per hour is later obtained by dividing the running time into the total mileage for the day. This latter operation is performed in the office, using the totalling device illustrated above.

Note that spaces are also provided on this form for the office personnel to indicate the total number of hours spent on the road, as well as a breakdown of those hours into running time, loading time, unloading time and idle time. Space for denoting order numbers and collections is also provided, as you will note within the squared center.

At the end of the day, the chart from each truck's recorder is then super-imposed over the daily report sheet turned in by the driver, to see if they both jibe. This serves as a *double* check and control. If the driver's report sheet is accurate, it should tie-in exactly with the chart from his recorder, showing the truck's running and standing time. If not, we want to know the reason why. But they usually agree with each other.

After each driver's report sheet is checked, all data from same is then transcribed or posted to a monthly summary sheet, one of which is kept for each truck. See the illustration at the head of this article (first page). This form is entitled "Truck-A-Month Record". Note that the data from the driver's report sheet (which we have illustrated at the bottom of the first page) is entered at the top of the monthly record sheet. It just happened that way, since it represents an actual record of a certain truck (No. 24) and the date also just happened to be December 1, 1942; hence it gets at the top of the sheet.

You will note that by simply running a total of each truck's monthly summary sheet, we then find ourselves with the following information concerning each truck's operation, on a daily and monthly basis: (1) Total Mileage; (2) Average m.p.h.; (3) Total Time in Operation; (4) Total Running Time; (5) Total Loading Time; (6) Total Unloading Time; (7) Gallons of Gasoline Used; (8) Quarts of Oil Used; (9) Number of Trips; (10) Number of Stops; (11) Order Numbers Filled; (12) Revenue Collected.

From this information, as most fleet operators will readily concede, it's as easy as pie to satisfy the Office of Defense Transportation's requirements in filling out their quarterly reports, since we already have the

(*Please turn to page* 94)

A New "Fleet Owner" Survey on Wheel & Axle Alignment

EXPERIENCE DATA FROM 169 FLEETS ON

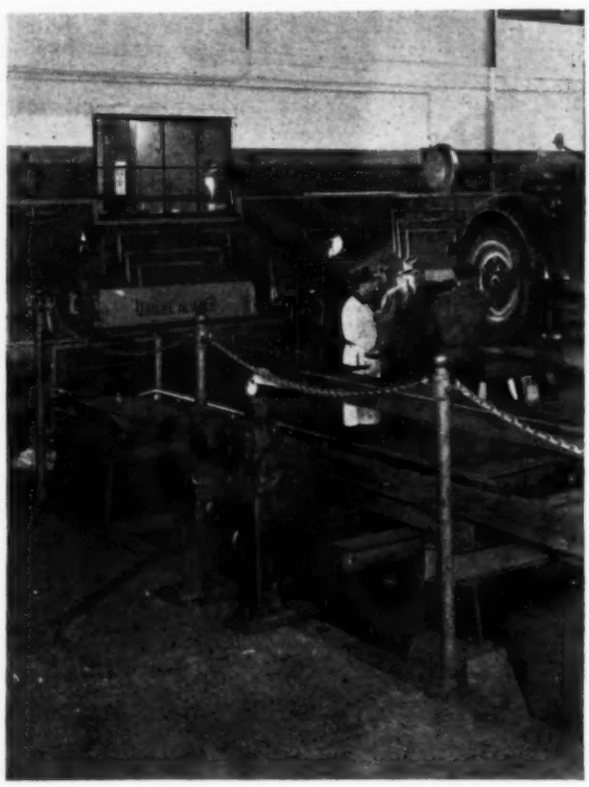
WHEEL & AXLE ALIGNMENT

•

By H. Clay Fischer, Editor

WHEN the Japs cornered 90 percent of the world's natural rubber sources last year, they did the American public in general—and fleet operators in particular—a big favor! That is, they made us erstwhile easy-going Americans "tire-conscious" to a remarkable degree. As a direct result of the "fix" we found ourselves in on rubber, wheel and axle alignment is at last finding its place in the sun. Today, it can be reported, inspection for wheel and axle alignment now occupies practically number-one position on the preventive maintenance schedules of most fleet operators, and it has produced an average increase in tire mileage of better than 13 percent among a number of fleets surveyed.

In our October issue of last year we ran a new questionnaire (No. 131) on the subject of Wheel and Axle Alignment, believing that by that time, most fleet operators would have their tire conservation programs in full swing, and would therefore be in a position to intelligently participate in a wartime survey on the subject. A total of 169 fleet operators responded, from 37 states and Canada, operating 36,697 vehicles in the aggregate, and having an average of 217 vehicles per fleet. Those fleet men who were good enough to participate have by now received their confidential summaries. You fellows who did not, will have to be satisfied with the brief resumé that we are giving here.



Our first question asked, *"Is wheel and axle alignment included in your preventive maintenance plan?"* .... Fleets replying in the affirmative totaled 159; in the negative, 10 fleets. From which it can be seen that our Jap friends *have* done a good job of "educating" fleet operators to believe that a little attention to wheel and axle alignment will save many tire miles—and dollars, incidentally. After the war, fleet men should continue to be "tire-conscious," for some time. anyway. So, it's an ill wind, etc.

Next we asked, *"How often do you check for proper wheel and axle alignment?"* .... A wide variety of answers was given, some on a mileage basis and some on a time basis..... The mileage intervals ranged from a low of 1,000 to a high of 12,000 miles; most of the replies, however were within the 1,000 to 5,000-mile bracket..... Over on the "time" side of the ledger we find the intervals to range from "weekly" to "annually", with most of the replies being in the 1-month to 6-month bracket..... Six fleet operators reported that they check "When tires show wear", which is a bit too late, to our way of thinking.

Our next question made an attempt to learn the extent to which fleets are equipped with wheel-alignment equipment—gauges, correction apparatus, etc. Quite a lengthy tabulation of equipment appears on our mimeographed report. Summarizing it briefly, we would say that practically 100 percent of those fleets which do *any* wheel-alignment work at all, at least are equipped with a toe-in gauge.

There's a lot of other (additional) equipment in the shops of the fleets surveyed, including caster and camber gauges, drive-on wheel testers, wheel balancers, tracking gauges, straightening and correction equipment, etc..... A few fleets boast ownership of modern factory-built wheel-and-axle racks, complete with every variety of testing and correcting equipment..... To break down the list of equipment here would require too much space. Let it be said that we were agreeably surprised to see so much equipment now in use; and also, on the other hand, that there is lots of room for additional equipment of this nature in many fleet shops; if you can get it.

The question of shop equipment, of course, has a direct bearing on whether or not wheel and axle alignment work will be done in the fleet's own shop, or whether it will be farmed-out to outside service stations. Our next question, therefore, asked, *"Where do you have your wheel and axle alignment work done?"* .... Sixty-four fleets do *all* of their own work in their own shops, while 44 fleets have all of theirs done by outside shops..... 61 fleets (the balance) do some of their own work—the simple jobs, presumably—and have some of it done outside.

We know some fleets, for example, who are able to check and correct toe-in

(*Please turn to page* 42)

They Don't Come too Big for Thermoid

Lyman Timber Company
HAMILTON, WASHINGTON

November 1, 1942

The Thermoid Company
San Francisco
Calif.

Gentlemen:

Since we have been using Thermoid Brake Blocks, we have had such good service, that we felt a word to you would be in order.

Our operation is very unusual inasmuch as our fleet of logging trailers are so large that they cannot be operated on public highways. It is easy to understand, therefore, that to hold one of these units under control when loaded with twenty-five to thirty-two tons of fresh cut timber, down the side of a mountain, is a tough assignment. Grades running from eight to twelve per cent are common and drum temperatures run so high that water must be constantly sprayed on them to keep them cool enough to do their job.

Our experience with Thermoid indicates no friction fade and a wear factor far superior to the average under the conditions.

We are also using Thermoid Fan Belts, Clutch Facings and Radiator Hose on our fleet, and Thermoid Industrial Roll material on our wenches and donkeys with equally satisfactory results and highly recommend Thermoid Products for any of the services for which they are designed.

Very truly yours,
LYMAN TIMBER COMPANY
By A. K. Lisherness

Is your braking problem *this* tough? If it is, you certainly need Thermoid! If it isn't, think of the *extra* margin of safety and service you get from Thermoid Brake Linings. Try Thermoid on your toughest units — you'll soon have them on the rest. They are "Right the first time".

Thermoid

Custom-Built Brake Lining Sets · CBB Sets
Thermo-blocks for heaviest duty

and caster in their own shops, but when it comes to axle and frame straightening, they turn this over to outside specialists having more elaborate equipment. . . . . The figures we have just given you are most encouraging in that they reflect the increased attention now being devoted to this important phase of preventive maintenance.

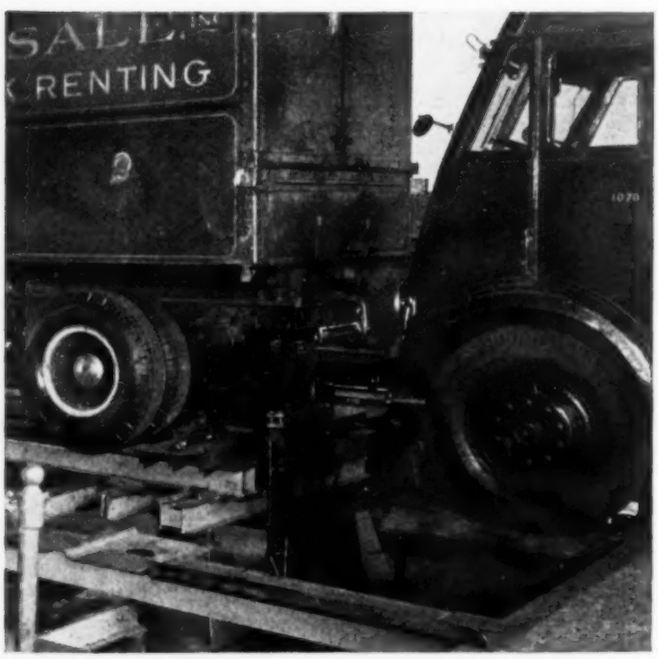
And here is where due thanks must be paid to those Japs. We next asked, *"How has the current tire situation affected your wheel checking practices?"* . . . . 106 fleet operators report that they now check "more often," while only 63 say that they check "the same as ever." . . . . Of those 106 fleets that now check more often, 44 fleets have noticed a *great* increase in tire mileage as a direct result; 41 fleets notice a *slight* increase; 18 notice *no* change; and 3 fleet men are noncommittal on this point.

And *how* great do you think the increases in tire mileage have been, as a result of the post-Pearl Harbor attention that is now being paid to truck and bus wheel-alignment? . . . . When asked for a rough idea of their increases, 54 fleet men responded with percentage increases ranging from a low of 2 percent to a high of 50 percent. Most numerous, however, were those with 5 percent and 10 percent increases. . . . . Averaging all of the 54 percentage increases given, produces a general average of, roughly, 13 percent.

Think of it! Fifty-four fleet operators who are now paying more attention to wheel and axle alignment are now enjoying an average increase of 13 percent in their tire mileage as a direct result! There's something for your note-book, and we'll bet Mr. Jeffers will just *love* it!

We next asked, *"Do you check rear wheels for bent axles, loose bearings, etc?"* . . . . The affirmative response was duly great, with 140 votes. Only 18 fleet men said "No"; and 11 did not answer. . . . . We might add that it's just as important to pay strict attention to rear wheel alignment as it is to front wheel alignment. Under today's wartime loads and peak operating conditions, axles *can* get bent, frames *will* twist or become otherwise distorted, and as a result, your rear tires will get the scuffing of their lives. The incident related on page 50 of our January issue contains proof positive, with an actual case-history. It will bear a re-reading, if the issue is handy.

MOST fleets surveyed place toe-in as the most important thing to check. However, a camber check (as shown here) is equally important. . . . We don't have to tell you that attention to wheel alignment is vital under present conditions.



TRUCK on right is having its front axle straightened the modern way—COLD—without removing it from the chasssis. . . . Hydraulic jacks, chains and clamps do the trick. . . . Most of the fleets surveyed agree that this is the right way to do it.

Entirely too many vehicles come into the shop to have a spring replaced, or some other service operation performed. and even though undue tire wear is obvious and often conspicuous, nothing is done about it. The main idea seems to fix the spring (or broken part) and get the vehicle rolling again; a little time spent in finding the *cause* of the spotty tire wear (and fixing it) would save valuable rubber and pay big dividends, as well. Some time we hope to run across the "perfect" fleet operator, in this one respect. When we do, we'll tell you about it in a feature article.

Our next question was simply routine, asking *"What procedure do you follow for straightening bent front axles?"* . . . . Popular choice is for straightening them *cold*, without removing them from the vehicle. The equipment makers have produced some right smart gadgets to make this work easy. Clamps, chains, bars and beams, plus a good hydraulic jack—with all of these placed in the right positions—and the work is easy. Especially if you know how. If you don't, let an axle specialist handle it for you, as 24 of the fleets surveyed report doing.

Of course, even though the axle makers caution against the use of heat, there are some operators who still carefully remove the axle from the vehicle, heat it with the welding torch and do a straightening job on it. These fellows claim that "a pretzel knows no sense

(*Please turn to page* 83)

Keep Those GENERATOR ARMATURES *"on the job"!*

You have a big job to do for America—the job of saving parts and materials. Don't replace armatures until you have made sure they *can't* be fixed. And when they can't be fixed, turn them in to your distributor.

HERE ARE 4 COMMON CAUSES OF ARMATURE FAILURE

1. **Burned-up Armature.** Look to see if the armature winding is burned to the point where windings are loose in the slots or cotton insulation is burned off. If this condition exists, turn the armature in and replace with another armature.

2. **Grounded Armature.** Test armature with test lamp for ground. Since a majority of grounds are caused by carbon dust from the generator brushes, this condition can usually be corrected by blowing dust out of windings and from behind commutators with an air hose.

3. **Short Circuit.** Put armature on a growler, holding a hacksaw blade or thin strip of steel over the armature core. If the blade vibrates at any point while armature is being turned one revolution, there is a short in the armature. The short may be between adjacent commutator bars or between leads.

4. **Open Circuit.** Rotate the armature in the growler and check for open circuit by progressively shorting adjacent commutator bars around the commutator with the hacksaw blade. If no sparking occurs between any two adjacent bars, an open circuit exists. The most common causes of open circuit are broken wires or connections which have become unsoldered at the commutator bars.

GET COMPLETE SERVICE INSTRUCTIONS

The instructions on this page are just "highlights" taken from the United Motors Wartime Service Handbook. For complete instructions on servicing armatures and other Delco-Remy equipment, mail in the coupon below.

Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION
ANDERSON, INDIANA

UNITED SERVICE MOTORS

Delco-Remy service parts and service information are distributed by United Motors Service through independent automotive wholesalers.

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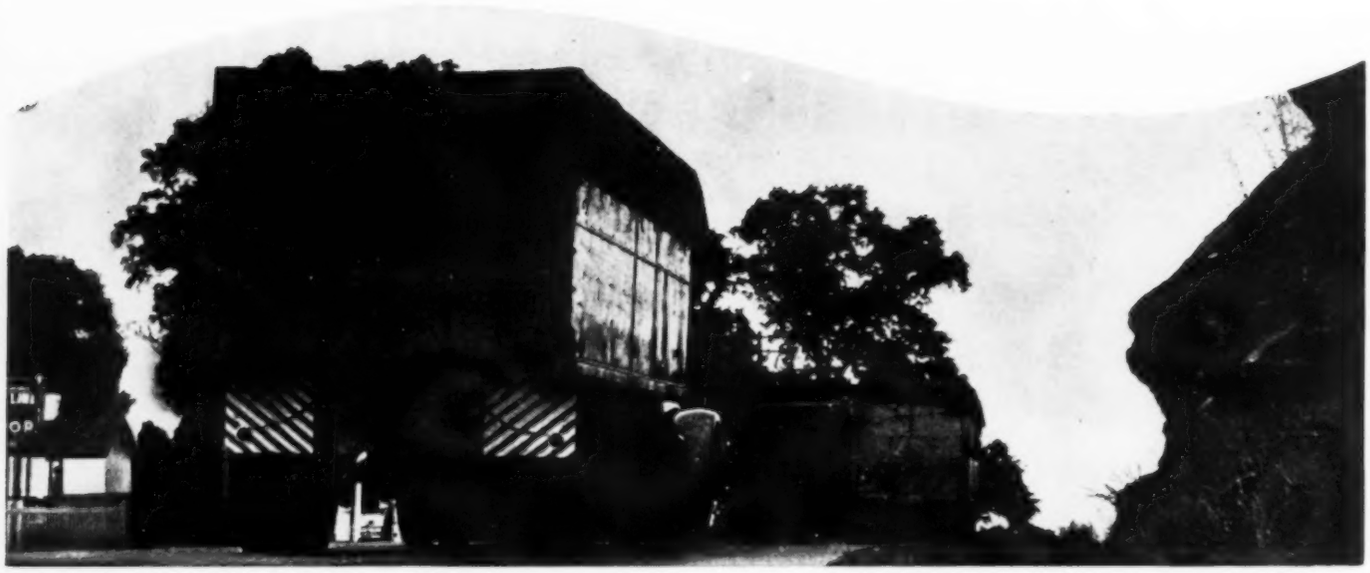


THE OUTLOOK FOR THE TRUCK INDUSTRY DURING 1943--AS VIEWED BY O.D.T.

NOT TOO BRIGHT A FORECAST IS OFFERED, WHAT WITH VERY LITTLE RUBBER, FEW NEW VEHICLES, AND A PARTS AND MANPOWER SHORTAGE LOOMING UP BIG.

THE TRUCKING industry, holding its own during 1942 despite mounting difficulties, faces far more serious problems in 1943 than any encountered during the first year of the war, the Office of Defense Transportation pointed out recently in a review of last year's events.

Not yet "over the hump" as far as rubber is concerned, the industry during 1943 will be faced with a new and, perhaps, even more serious combination of problems. These problems are the rapidly growing shortages of manpower, parts and vehicles—none of which presented any critical difficulties during 1942. . . . . No truck owner in the United States—from the farmer or corner grocer, with a single delivery truck, to the big fleet owner—will be immune.

For some, the tire shortage will continue as the most pressing problem. For others, it will be lack of manpower for operation or maintenance or both. For others, it will be parts. For others, it will be vehicles. For many, it will be a combination of all four. . . . . All of these problems are being closely watched by the ODT, and programs have long been under way to prevent them from becoming more serious.

By and large, truck operators have indicated they are aware of the seriousness of the situation facing the industry and are taking steps to conserve equipment and manpower, the ODT said. . . . To those operators who depend on some "miracle" rather than their own efforts to keep their trucks in operation, the ODT had only this to say: "You're heading for trouble." . . . Briefly, here's the way the situation looked to the ODT at the turn of the year:

Tires—Military requirements for rubber will leave only 45 percent as much crude rubber for commercial motor vehicles for 1943 as they used up in 1941. Moreover, most tires now being built for commercial vehicles are composed of a mixture of crude and reclaimed rubber, which means that they will wear out faster and won't stand up as well under heavy loading or other harsh treatment. It also means that speeds must be held down.

Further, it means that more care than ever before must be given to tire pressures, wheel alignment and other mechanical details and driving practices generally. Finally, it means that no truck should be driven a single mile unnecessarily.

Manpower — Shortages of manpower, both for operation and maintenance, began to crop up in 1942 and will become steadily more serious during the next twelve months. The trucking industry continues to be subject to a two-way manpower drain—one from the armed services, the other from war plants.

Proper maintenance requires trained mechanics. They will be harder and harder to find as time goes on. Proper operation of trucks, both big and small, requires trained drivers. They, too, will be harder and harder to find.

This means that everything possible must be done, through training, upgrading of workers and otherwise, to utilize available manpower to its maximum capabilities. It means also that women must take over "man's work" wherever practicable.

Parts—The parts situation can be summed up in four words: "Tight and getting tighter." As 1942 closed, stocks of certain vital parts, such as crankshafts for certain engines, had been exhausted. Many other parts were hard to find, owing to drains on local stocks.

Recognizing the need for keeping present vehicles in operation as long as possible, the ODT has taken steps to speed up production of parts in 1943. But

(*Please turn to page* 102)

Pennsylvania Tires

THE RECORDS BACK UP THE CLAIMS

You get longest total mileage out of tire ration certificates with Pennsylvania Truck Tires. Scores of letters like the one printed below give the actual results.

Exclusive features of built-in strength make Pennsylvanias run cooler—stay sound and strong for *more* recapping or retreading.

Call on your Pennsylvania dealer—he can help you get the most mileage out of every ration certificate. He knows details of tire rationing; how to prepare the papers; how to select the *right* Pennsylvania Tires for your type of service.

Ask to have your retreads made with genuine Pennsylvania Retread Materials.

O. B. HUNT *Produce Transport,* **GOULDS, FLORIDA**

Oct. 15th, 1942

Mr. C. V. Hicks,
Waldron Tire Co.,
Miami, Florida

Dear Mr. Hicks:

The Pennsylvania Tires put on my truck over a year ago have never been off the rims.

Actual mileage recorded on these tires is in excess of 100,000 miles, and from the looks of the treads they should go at least twenty-five to thirty-five thousand miles more before time to recap. I know it is hard to believe that any tire will give such mileage but I have the records to back this claim.

I can assure you that after getting such service from Pennsylvania Tires, I intend to use nothing but them in the future.

Yours very truly,
O. B. HUNT
O. B. Hunt

These are the tires Mr. Hunt tells about in his letter at left.

★

Pennsylvania Storage Batteries are available for every automotive need.

Pennsylvania
RUBBER COMPANY
JEANNETTE, PA.

THIS, folks, is what confronts us this winter: Lots of snow, rougher roads, low driving speeds, low temperatures and low-octane gas. . . . Let's see if we can't make the best of it.

HOW SLOW SPEEDS AND WARTIME FUELS ARE AFFECTING

WINTER OPERATION

(And Are Causing Mechanical Difficulties)

THIS is *not* going to be one of those "winter sermon" articles, which usually starts off cautioning you to be sure and use anti-freeze, check your tire-chains, etc.; by this time, most wise operators are 'way beyond that stage. But the best of them are now having *different* kinds of winter operation "headaches"—due to the slow speeds at which we must operate, the lack of sufficient engine temperature build-up, the poor condition of many engines caused by increased work, and to a certain extent due to the lowered quality of motor fuels now generally available. And the parts and labor shortages don't make it a bit easier—but let's not talk about *them* right now.

As early as last July, this publication anticipated the situation which now confronts fleet operators, when we published the article entitled *"Adjusting Engines for War-Time Fuels"*. In that article, detailed instructions were given as to exactly what procedure fleet owners should follow, in order to operate efficiently on the fuels of reduced octane-rating that were then "just around the corner". Today those fuels are here, and with them we have colder weather and, oh, yes, that maximum speed limit of 35 m.p.h., which was not generally anticipated at that time.

Just *how* bad are today's fuels? Without making an extensive survey, we have been able to learn that there has been a definite reduction in the octane-rating of regular grade gasolines—from a pre-Pearl Harbor standard of about 75, to as low as approximately 70-72 at this writing. Premium fuel, it would seem, has suffered even less, if at all; prior to Pearl Harbor it boasted an 80 octane-rating; since then it has hit a low of 78, and according to reliable information, it has recently been upped again to 80, at the request of the War Department. It seems that military vehicles are designed to burn 80-octane fuel and the War Department wants it generally available at service stations throughout the country. So much for octane-number, which really has not been reduced as much as is generally supposed.

Other qualities inherent in 1941 gasolines do not seem to have suffered in 1942, and probably will not in 1943, according to what the fuel experts tell us. The matter of volatility, so important for easy starting in cold weather, has *not* been materially decreased if at all. Gum-inhibiting properties of gasolines, too, seem still as good as ever. The question of vapor-pressure, with special reference to its effect on vapor-lock is not a winter problem, so it need not be discussed here. And so far as the *purity* of the fuels goes, there have been no drastic changes in refining processes, except that the better elements have been grabbed off for aviation use, which still leaves a pretty good motor fuel, according to gasoline experts.

WE LAUGHED at makeshift radiator covers like this a few short years ago. Today the smart operator uses ANYTHING that will maintain proper operating temperatures, to make up for low road speed.

The big problem then, as we see it, cannot be laid at the door of motor fuel. Rather it is one based on operating factors. Without making many drastic changes—such as lowering compression ratios, or setting spark timing 'way down under—fleet operators have been able to adjust their operations to the new fuels—or should have. Some fleets have gotten around the problem by slightly retarding spark timing; others use a percentage of premium fuel with the regular grade, making their own blend. Still others have learned that the present fuels can be satisfactorily used, if combustion chambers can be kept *clean*.

It is here where the operation factor enters the picture, in the form of a vicious circle. The first thing to be affected by the 35 m.p.h. speed limitation is engine operating temperature. Many engines are chronically "cold" performers, especially those with large (and clean) cooling systems. When they are held down to 35 m.p.h. and particularly in cold weather, they just won't *ever* get hot enough unless definite means are taken to increase their temperatures. This problem is magnified in multi-stop operations.

Among the many evils caused by low engine operating temperature, in cold or even cool weather are the following: (a) Excessive crankcase dilution. (b) Contamination of engine oil with water. (c) Corrosion of bearings, crankshaft journals and other parts. (d) Oil emulsion sludge and consequent formation of varnish. (e) Rapid crankcase oil deterioration. (f) Rapid

(*Please turn to page* 103)

A HUSKY TASK FORCE OF FEDERALS PROVES ITS METTLE IN THE BATTLE OF STEEL

MESABI—GUYUNA—GOGEBIC—MENOMINEE—strange sounding, yet mighty important names in the fierce battle of steel now waged on the work fronts of America. From the great open pit iron mines of these famous ranges comes a gigantic flood of ore, feeding the Bessemer and open hearth furnaces of our war girded industry.

It's a production flood—swelling to 90 million tons or more for 1942. This all-time high in iron ore output tops the previous war peak of 1916 by over 35%. To set this record, unsung heroes of these pit mines have been toiling and sweating 24 hours a day, six days a week, to make sure our industrial effort shall not fail—to serve the ends of swifter victory. Into the production breech have gone fleets of husky ore trucks to match the back-breaking performance of both producers and miners with a brand of consistent, round-the-clock dependability that has won the everlasting respect and esteem of men who have the "know how" to really deliver the goods.

"KEEP 'EM ROLLING!"

Pledged
U.S. TRUCK CONSERVATION CORPS

● America's trucks—YOUR TRUCKS—must keep working for Victory. Frequent and thorough check-ups with any Federal Dealer will help keep trucks on the job. Pledge yourself to "keep 'em rolling" for Uncle Sam.

Federal's part in helping speed this essential work is added evidence of the inherent qualities of heavy duty, all-truck performance so consistently built into its transport units of varying tonnage capacities. Again we repeat: "Toss the Tough Jobs to Federal!"

FEDERAL MOTOR TRUCK CO., DETROIT, MICH.

FEDERAL TRUCKS

Since 1910 . . . Known in Every Country—Sold on Every Continent

IF BY CHANCE YOU'VE USED CALCIUM CHLORIDE—

FLUSH IT OUT! BEFORE IT'S TOO LATE

NATIONAL BETTER BUSINESS BUREAU WARNS THAT MANY SALT SOLUTIONS HAVE BEEN SOLD THIS WINTER, FOR ANTI-FREEZE PURPOSES—USED IN COOLING SYSTEMS THEY WILL CAUSE SERIOUS CORROSION AND RADIATOR CLOGGING—HOW TO TEST FOR CALCIUM CHLORIDE:

COMPLAINTS in alarming numbers are being registered with many service stations throughout the nation which have sold their customers anti-freezes containing calcium chloride, according to a statement issued last month by Edward L. Greene, General Manager of the National Better Business Bureau. The longer these brine solutions stay in cooling systems, the more damage will be done to many of the nation's automobiles, trucks and buses, Mr. Greene warned.

The announced shortage of standard anti-freeze solutions has been a bonanza for the purveyors of salt solutions. Made from flake calcium chloride costing from $18 to $41 per ton, many of these anti-freezes are sold in gallon containers, weighing not more than 12 pounds per gallon, for approximately $2.50 per gallon. "But these handsome prices for salt solutions may be just the beginning of what it will cost the purchasers to repair the damage they may do to their vehicles," Mr. Greene warned.

"Calcium chloride has been offered sporadically as an anti-freeze for years," Mr. Greene stated, "and it has caused trouble for years. The National Bureau of Standards recommends no calcium chloride solutions for use in Uncle Sam's jeeps, or any other government-owned motor vehicles. Automobile and truck manufacturers warn the purchasers of their vehicles never to use such anti-freezes. Manufacturers of such solutions invariably claim that their products are different in that they contain certain inhibitors which will prevent corrosion." Queried on this point by the National Better Business Bureau, Dr. Lyman J. Briggs, Director of the National Bureau of Standards, stated:

"It is well known that the addition of small amounts of certain materials (such as soluble chromates) does protect various metals against attack by calcium chloride solutions in laboratory tests, especially at low temperatures. This does not prove that such inhibitors will be effective in preventing corrosion when calcium chloride solutions are used in automotive cooling systems under actual service conditions. On the contrary, several commercial anti-freezing solutions, which contain calcium chloride plus an inhibitor and which have passed certain laboratory corrosion tests, are reported to have given serious corrosion trouble when used in fleets of trucks and taxicabs.

"A solution containing 35% $CaCL_2$ is saturated at about $+10°F$; therefore, radiator clogging may result from the formation and growth of calcium chloride crystals when a solution of this concentration is used without adequate dilution. The use of any radiator solution which contains calcium chloride, further, will give rise to persistent ignition trouble if any of the salt solution comes in contact with spark plugs or ignition wires. The salt deposited when the water evaporates is very difficult to remove completely. When it cools, it absorbs water and becomes a good electrical conductor, causing short circuits which are not easy to locate, as they disappear when the engine is heated up."

Unfortunately for the users, the labels on calcium chloride solutions usually bear no disclosure of their nature. Dr. Briggs gives this advice as to how the presence of calcium chloride may be discovered:

"Any preparation of undisclosed composition, sold as a 'permanent anti-freeze', should be carefully scrutinized. If such a solution weighs between 10.5 and

(*Please turn to page* 94)

SOMEONE'S GOT TO *Keep 'em Rolling!*

PATCHWORK PETE:
Wish I was out, there in the Solomons with a gun 'stead of stayin' home here with a wrench and a pair of pliers.

T. P. TIM:
Yeah, I know just how you feel old-timer—but we put on OUR show back in 1918. They need the young, husky lads for the fighting today. You're worth more doing a good job at home.

• Many a motor mechanic feels just like Pete does—itches to get into the actual fighting—or thinks he might serve better by going into a defense plant. It's a question each man must settle for himself—but there are some things to remember—

America's traffic and transportation is vital to the war effort—it must not be paralyzed. Trucks, tractors, and defense workers' cars must be kept in service. The longer the duration of the war, the heavier will become the burden upon the skilled automotive and maintenance man to keep aging cars and trucks running.

Thompson Products faces much of the same problem. Normally, Thompson's volume was about 75% original equipment and replacement parts for cars, trucks, and tractors. Today, Thompson's big volume is in vital parts for planes, tanks, army trucks, torpedo boats—but to date with government approval we have been able to produce more automotive replacement parts than during many peacetime years.

Remember too, Uncle Sam is training thousands of young, ambitious men to become expert engine mechanics. They will be putting that ambition and skill to work when they return.

Doesn't it seem sensible and patriotic advice for older, established repairmen to stick to their job, doing the best maintenance work they know how and building for the day when competition in their field will be keener than ever?

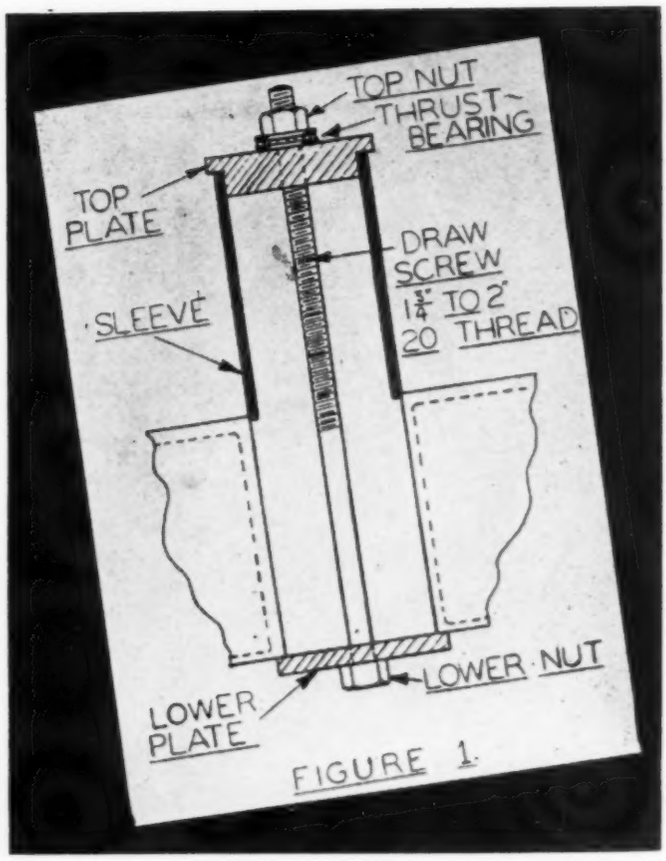
THOMPSON PRODUCTS, INC.
Detroit · CLEVELAND · *Los Angeles*

Your TP jobber is doing his best to maintain an adequate stock of replacement parts. With the bigger repair jobs needed today, his machine shop can help you more than ever.

See Your **Thompson Products** *Jobber*

SAE-ODT DATA on

(REPORT ON RECONDITIONING CAST-IN-BLOCK



Installing dry-type cylinder sleeve with special puller.

IN CONSIDERING the subject of cylinder sleeves, the SAE-ODT Committee found it necessary to divide its report into three parts, as follows: (A) Salvaging and reconditioning cast-in-block engines by installing dry-type cylinder sleeves. (B) Reconditioning and replacing dry-type cylinder sleeves in replaceable cylinder sleeve engines. (C) Reconditioning and replacing wet-type cylinder sleeves in replaceable cylinder sleeve engines.

Section (A) treats the subject of installing dry cylinder sleeves in an engine not designed for the use of sleeves, as a means of salvaging the engine when damage or wear to one or more cylinders makes such a step necessary.

Section (B) is an outline for the installation and maintenance of dry cylinder sleeves when used in an engine designed for their use and originally equipped with them.

Section (C) is an outline for the installation and maintenance of wet cylinder sleeves when used in an engine designed for their use and originally equipped with them.

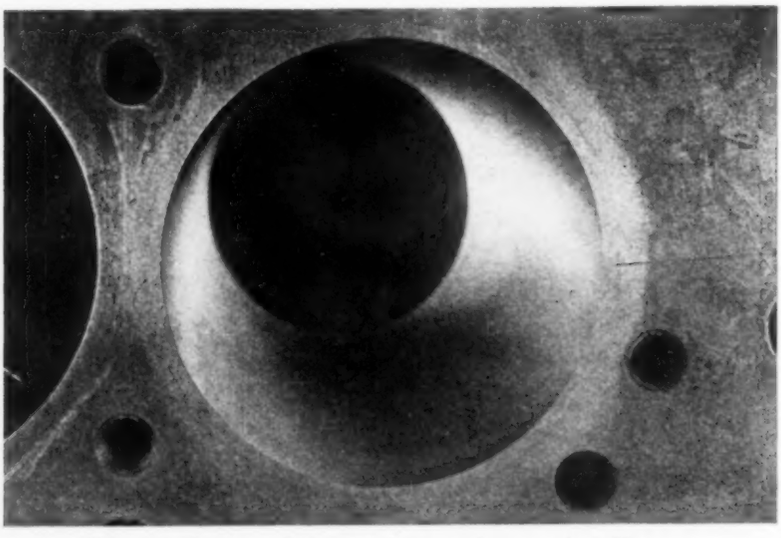
Section A—Salvaging and Reconditioning Cast-In-Block Engines by Installing Dry-Type Cylinder Sleeves:

Taking up each division of the subject in the order stated, we can report in connection with the first division that this practice is believed to be entirely practical and advisable when any of the following conditions exist:

1. The diameter of the oversizing required will be greater than the safe maximum specified by the engine manufacturer or will necessitate the removal of more than 1/16" (.062") of metal from the cylinder bore, which is the limit, except where cylinder wall thickness is known to be sufficient to permit greater oversize.

2. The cylinder walls are deeply scored or cracked, necessitating the removal of more than 1/16" (.062") of metal.

3. The porosity of the metal is such that leakage is visible under test.

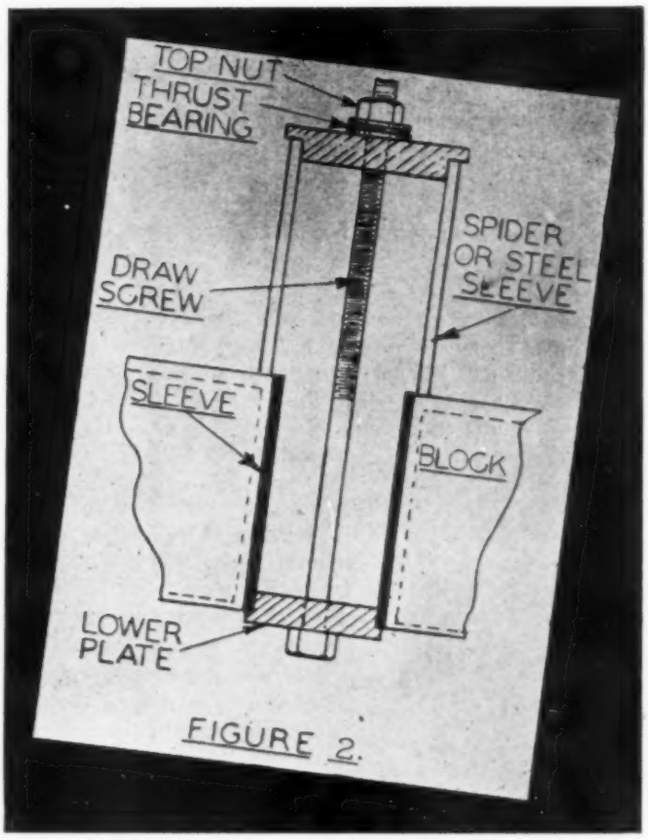


This was a broken cylinder. A dry-type sleeve made it like new.

Note: Despite the widespread misconception among truck users, the use of cylinder sleeves of any type has never necessitated, and does not now necessitate, the complementary use of special pistons or rings. Standard pistons and rings are entirely satisfactory.

Preparation for Installation of Dry-Type Sleeves: The paramount consideration when installing dry-type sleeves in cast-in-block engines is to obtain the best possible fit of sleeve to block. Only a close and uniform fit will assure adequate transfer of heat from piston and rings through the sleeve to the cooling section of the block.

Inasmuch as the sleeve outside diameter contour always conforms to the contour of the block bore and reflects any irregularities therein, it is essential that the bore of the block be as true as careful workmanship can make it. The greatest accuracy must be observed in boring and machining if distortion of the sleeve, with subsequent corrective honing, is to be avoided. The machining can be done with either a precision cylinder grinder or a boring bar. More than one grind or cut should be made to obtain the finished size.



Removing dry-type cylinder sleeve with special puller.

CYL. SLEEVES

ENGINES, FITTING CYLINDER SLEEVES, ETC.)

The specification for the fit of the sleeve to the bore depends on which type of sleeve is being installed—the cast iron sleeve of comparatively low Brinell rating (200 minimum) or the steel sleeve with high Brinell rating (460 minimum). The usual fit for the cast iron type of sleeve is a shrink or press fit of .002" to .003", whereas a line-to-line fit is considered satisfactory in the case of the high Brinell type steel sleeve (except in rare instances where extremely thin sleeves are used, in which cases a slightly tighter fit is necessary). Where a plain sleeve of this type is to be used, it is recommended that a shoulder be left in the bottom of the bore, in order to lock the sleeve in place between its shoulder and the cylinder-head gasket. Where it is possible to install a sleeve with a shoulder at the top to register with a groove at the top of the bore, a shoulder in the bottom of the bore is not necessary.

Installation Methods: The practicability of three methods of installing dry-type cylinder sleeves in cast-in-block engines has been well demonstrated. These are: 1. Use of puller assembly, as illustrated in accompanying sketches. 2. Use of air hammer equipment. 3. Expansion of cylinder bore and contraction or shrinkage of the cylinder sleeves.

1. Use of Puller Assembly: The first of these methods, the puller method, requires that, prior to insertion in the bore, the outside diameter of the cylinder sleeve be given an even coat of thin white lead or hydraulic brake fluid. This precaution prevents scoring of the sleeve as it is pulled in.

Care should be exercised to start the sleeve in squarely, in order to prevent "cocking" or distortion. It should be drawn down with an even pull until it is flush with the top of the cylinder block.

When a number of sleeves are to be installed, say 6, they should be installed in alternate bores as, for example, 1, 3, and 5, followed by 2, 4 and 6. This procedure, permitting the block and sleeves to normalize themselves gradually, is a safeguard against distortion, with its implied complications.

Upon completion of the installation of sleeves in a block, the inside diameter of each sleeve should be measured with inside micrometer and dial indicator for possible distortion resulting in a taper or out-of-round condition which would impede piston travel. If either condition is indicated, it should be corrected by reboring or honing.

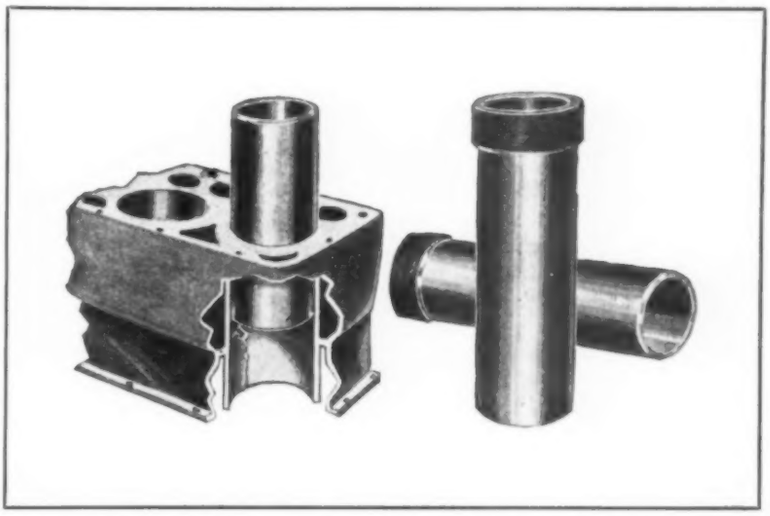
In order to remove all abrasive particles, the installed cylinder sleeves should be washed out with soapy water, flushed with clear water, and dried with air. When dry, the cylinder sleeves should be lubricated without delay, to prevent rusting.

Running clearance between piston and cylinder wall should be checked with steel ribbons or feeler blades of specified thickness and tension pull.

2. Use of Air Hammer: The second installation method, the air hammer method, is the same in principle as the puller method just described, in that the cylinder sleeve in each case is forced into the block bore under strong pressure. The air hammer method, however, does differ in the following detail:

To use the air hammer it is necessary to make up a "driving" plate that will fit the inside diameter and

(*Please turn to page* 52)



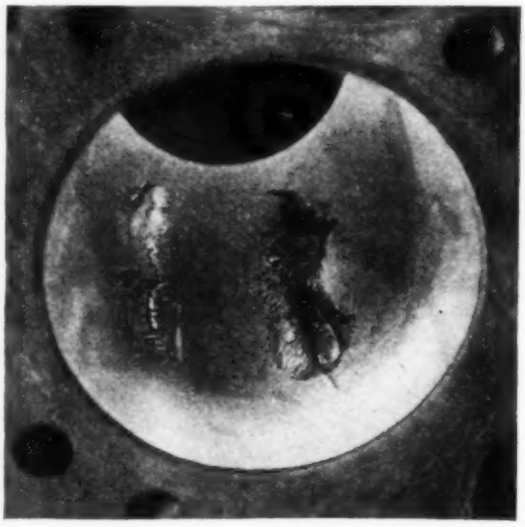
This old-style block was salvaged with a whole set of new sleeves.

outside diameter of the cylinder sleeve and take the blows of the hammer. The plate must be strong enough to withstand blows of half the operating pressure of a small air hammer and must be secured in some way so that it will remain in constant contact with the sleeve (to prevent damaging the end of the sleeve).

In all other respects the installation technique given in the previous section for the puller method applies throughout the air hammer method, and need not be repeated here.

3. Expansion and Shrinkage Method: This third sleeve installation method for cast-in-block engines differs from the preceding two in that it does not demand the exercise of force. Under this method the engine block is filled with hot water to bring about expansion or enlargement of the bores, while the cylinder sleeves are chilled by dry ice or other refrigerant to bring about shrinkage and a reduced outside diameter. Ordinarily under this method the sleeve can be installed by hand but may sometimes have to be tapped in (with a soft wood block).

Under this method, sufficient time must be allowed for the block and sleeves to normalize themselves as to temperature before the bores are checked for taper, out-of-round, running clearance, etc., as described in connection with the puller assembly method.



BROKEN cylinder blocks like this one should not be discarded. They can be fitted with dry-type sleeves and be made as good as new again. . . . The accompanying ODT-SAE report gives approved, detailed instructions for removing and replacing all types of cylinder sleeves—both the wet and the dry types.

Section B—Reconditioning and Replacing Dry-Type Cylinder Sleeves in Replaceable Cylinder Sleeve Engines:

Reconditioning Dry Type Sleeves: It is accepted practice, when required, to oversize dry-type sleeves for larger pistons up to the limit of manufacturers' recommendations, which run from .040″ to .060″. Sleeves which cannot be oversized within specified limits definitely should be replaced.

The method of oversizing dry-type sleeves depends on the material in them. If the sleeve material has a low Brinell rating, a boring bar, grinder, or hone can be used very satisfactorily. If the sleeve has a high Brinell rating, a boring bar cannot be used and the sleeve must be oversized by grinding or by use of a hone with stones of special grit. Naturally, the oversizing of a high-Brinell type sleeve involves considerable work, for which reason only the minimum amount of metal should be removed. No measurements for distortion, running clearance, etc., should be taken before the bore has had time to cool and normalize itself.

Replacing Dry-Type Sleeves: Whenever sleeve oversizing requirements exceed the manufacturers' recommendations in that respect, the sleeve should be replaced. Pullers are available or can be made up locally, as per the accompanying sketches, which are very satisfactory for the removal of used sleeves.

It is recommended that, following removal of the sleeves, a hone with fine-cutting stones be passed through the bores of the block to polish the surfaces. The polishing not only facilitates installation of the new sleeves but assures maximum contact of sleeve to bore for most efficient transfer of heat.

Before installation, the outside diameter of each sleeve should be measured, to make sure it is the right size for the bore in which it is to be installed. Installation of sleeves will be further facilitated and scoring prevented if the outside surface is given an even coat of thin white lead or hydraulic brake fluid.

As the three commonly approved methods of installation have been described in detail in another section, the reader is referred to that section for particulars.

Section C—Reconditioning and Replacing Wet-Type Cylinder Sleeves in Replaceable Cylinder Sleeve Engines:

For various reasons, manufacturers of wet-type replaceable cylinder sleeve engines have in the past been reluctant to approve the oversizing of wet cylinder sleeve bores and installation of oversize pistons as a remedy for cylinder sleeve wear or damage. The three main objections cited by the manufacturers are, first, the general unavailability of the skilled mechanics and precision reboring equipment necessary for a good job; second, the frequent dissatisfaction of owners with the jobs turned out as compared with a straight replacement job; and, third, the much longer time the truck is "down" as compared with straight-replacement "down" time.

Today, however, owing to the necessity of conserving metal required for the country's war effort, the practice of oversizing wet-type sleeves is favorably regarded, so long as all necessary precautions are taken in reconditioning the sleeve. The oversizing must, of course, be held within the specified limits of .040″ to .060″, except in the case of extremely heavy sleeves, when larger tolerances are permissible.

Regarding oversizing procedure the Committee makes the following recommendations:

As experience has proved the impracticability of grinding, honing, or boring out wet-type cylinder sleeves in their original block or case, it is definitely recommended that sleeves be removed from the block and placed in a special fixture affording at least a line-to-line fit. A line-to-line fit will prevent movement of the sleeve during the operation.

It is the absence of a line-to-line fit between a wet type sleeve and the block which makes it impracticable to oversize these sleeves in their original blocks. Clamping the sleeve at the top, to prevent movement during oversizing, strongly tends to distort the upper

(*Please turn to page* 106)

Ask your Standard Automotive Engineer for his suggestions to help you meet ODT fleet conservation requirements.

Heat-proofed Stanolube H. D.

How this remarkable new oil will help you conserve equipment

Beats Heat . . . Stanolube H. D. was developed to combat the destructive effect of higher engine heats on motor oil. The efficiency of the internal combustion engine has been greatly improved in recent years. This has been brought about, in part, by increasing the horsepower through higher compression ratios, closer fitting parts, and higher engine speeds. But these changes have also increased operating temperatures of modern engines to the point where a conventional motor oil oxidizes 6 to 16 times faster than it did in engines of five to ten years ago.

That was the problem Standard Oil technicians started out to solve. And the new "heat-proofed" STANOLUBE H. D. is their answer.

Cleans Engines . . . There are motor oils that partly solve the oil oxidation problem by loosening sludge deposits, and by keeping oxidized parts of the oil in suspension until they are removed by draining (a detergent action). But the rise in operating temperatures of heavy duty gasoline engines and the high temperatures in Diesels required *more* protection–an oil that would resist oxidation–a *heat-proofed* oil.

This is accomplished by combining, in Stanolube H. D., a special petroleum-base inhibitor, developed in Standard Oil laboratories, with a highly refined stock. The resulting oil has *both a detergent* action and unusual *resistance to oxidation*, even at temperatures above those encountered in present day engines.

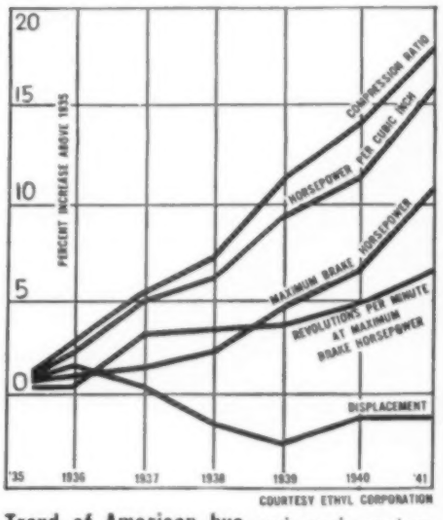
This means that Stanolube H. D. practically eliminates troublesome varnish formation and other engine deposits, along with the resulting clogged oil lines and screens, and dirty filters–conditions that cause stuck valves and rings, bearing failures and excessive engine wear.

For Fleet Operators Only . . . War-time restrictions limit the civilian use of STANOLUBE H. D., but because of the vital need for conserving your equipment it has been made available to fleet operators. Take advantage of this opportunity. Put Stanolube H. D. and Standard's Fleet Conservation Service to work on the biggest problem you have today–to make your present equipment last for the duration.

Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago, Ill., for the Engineer nearest you. In Nebraska, write Standard Oil Company of Nebraska at Omaha.

. . . doubles bearing life

Fleet Conservation Service more than doubled precision insert bearing life on Bringwald's Transfer Company fleet, Vincennes, Indiana. W. J. Bringwald (right), owner of the fleet, and Standard Automotive Engineer J. A. Mowbray examine a bearing which had been damaged by sludge and varnish formation in the engine before the Engineer worked with the fleet maintenance men and eliminated the trouble.

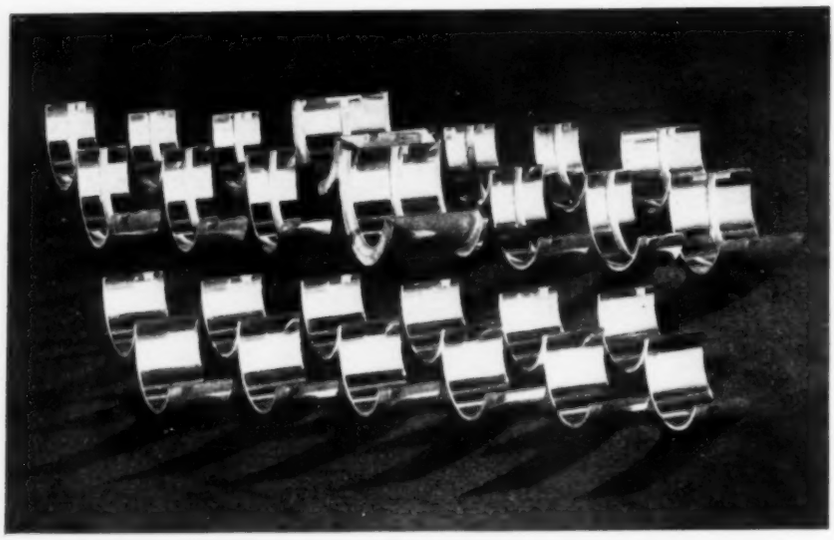


Trend of American bus and truck engines from 1935 to 1941, showing some factors contributing to higher engine heats.

Oil is ammunition . . . Use it wisely

STANDARD OIL COMPANY (INDIANA)

A FLEET CONSERVATION SERVICE



Set of modern engine bearings of the new "thin film" type.

ENGINE BEARINGS

•

SAE-ODT COMMITTEE OFFERS GENERAL DISCUSSION OF CURRENT BEARING TYPES, UNDERSIZES AVAILABLE, ETC., AS A PREFACE TO A "HOW-TO-DO-IT" BEARING ARTICLE THAT WILL RUN NEXT MONTH

THERE are three types of engine main and connecting-rod bearings in common use, classified according to their mechanical features. A description of these types, together with associated material combinations, their advantages and disadvantages, is given in Table 1.

A large percentage of engine models has been produced with precision insert (interchangeable) main and connecting-rod bearings. When the same precision insert bearing has been used in production during a period of years, a wide range of undersize replacement bearings has been demanded, so as to match crankshaft wear and successive regrindings.

For example, a popular medium-sized truck engine manufacturer, during the years 1934 to 1942, had a range of replacement connecting-rod bearings available in the following *undersizes*: .001", .002", .003", .005", .010", .012", .015", .020", .030", .040", .060", the last being available in semi-finished form only.

Another truck maker, for the years 1937 to 1942, had rod bearings available in the following *undersizes:* .001", .002", .005", .010", .020", .030", .040", .060", the last also being only available in semi-finished form. In both cases the demand was principally for *standard* size bearings, with the next greatest demand for the .001" undersize, and then .002" undersize.

These ranges of undersizes do not represent standard practice on all engines, as the size range is variable and in commercial vehicle engines particularly, a lot depends on local conditions. Many replacement precision insert bearings are supplied only as standards, .002" undersize, and .060" or .090" undersize; the latter being semi-finished on the inside diameter. These are either finished to size at assembly or are bored to the desired size in special bearing sizing machines in local facilities.

One builder (Chrysler) has regularly produced engines with two connecting-rod bore sizes; standard and .005" oversize. The use of the .005" oversize has been a means of salvaging rods which would otherwise have been scrapped. Another manufacturer (Ford) rebuilds many engines as a production proposition using connecting-rods which have been refinished undersize in the crankpin bore, in combination with undersize crankshafts.

After long service, many connecting-rods originally fitted with precision insert bearings become warped and out-of-round in the bearing saddle bore. Correction to restore true bore roundness is often made locally by regrinding or honing to .005" or .010" oversize.

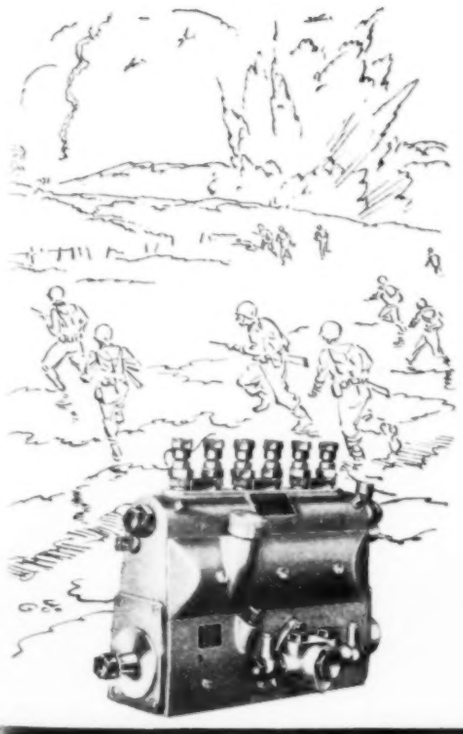
A condition thus exists whereby certain replacement bearings have been required which are not only undersize on the inside diameter but also oversize on the outside diameter. (*Please turn to page* 107)

Type 1 Precision Insert Bearings (Interchangeable) No boring, reaming or otherwise fitting required to prepare bearings for shafts	Type 2 Removable Bearings Bored or reamed to exact size after pre-assembly in crankcase or connecting rod	Type 3 Direct Babbitted Bearing As applied to connecting rods or bearing caps. Bored or reamed to exact size at assembly
Advantages: Ease of replacement and lower assembly cost. Not necessary to remove piston and rod assembly to replace connecting rod bearings. Not necessary to completely remove crankshaft to replace the main bearings. Installation can be made by a mechanic with limited training. No special machine or tool equipment is required to make an emergency repair in the field. **Disadvantages:** Inaccuracies in dimensions and out of roundness of bearing saddle bores in connecting rod and crankcase will be closely duplicated by bearings after assembly. Misalignment, warpage and bow in crankcase cannot be corrected by installation of new bearings.	**Advantages:** More accurate replacement job. Dimensional inaccuracies and crankcase bearing saddle bore misalignment, warpage and bow are automatically corrected during the final boring or reaming operation. **Disadvantages:** Replacement is more difficult. Piston and rod assemblies must be removed to replace connecting rod bearings. Engine must be removed from chassis to replace main bearings. A more or less extensive set of boring or reaming equipment is necessary. A skilled operator is required to set up and operate the boring or reaming equipment.	**Advantages:** Same as for Type 2 **Disadvantages:** Same as for Type 2
Material: Tin base babbitt applied to a steel or bronze back. Lead base babbitt applied to a steel or bronze back. Cadmium alloy bearing metal applied to a steel back. Copper-lead bearing metal applied to a steel back.	**Material:** Same as for Type 1	**Material:** Tin base or lead base babbitt directly applied to connecting rod or, in a few cases, to the bearing cap forging. Note: Direct babbitted caps must be used with align bored (or reamed) upper bearing shells.

Table I—Types of Engine Main and Connecting-Rod Bearings.

Three years ago she was a school girl. Now she's a modern New England craftsman drilling holes .006" in diameter in fuel injection spray nozzles.

"Running as smooth as silk"



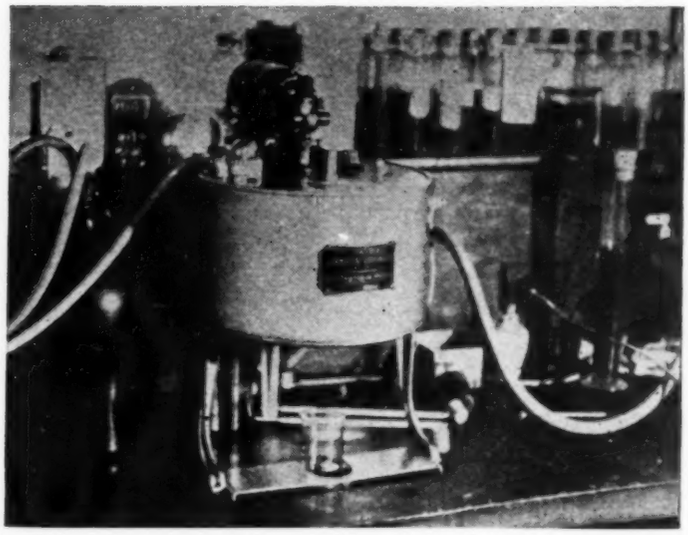
ZERO HOUR . . . no time now for tinkering . . . the landing boat's Diesels must not fail or falter. In a raid timed to the last minute, fighting men trust their lives to the quality of their equipment, confident that America's production men and women have done their part.

That confidence is well founded. At American Bosch, for example, increasing shipments of Diesel fuel injection pumps and spray nozzles pour forth to equip the engines of the United Nations. Turning out this equipment to tolerances measured in *millionths* of an inch are American Bosch *specialist* craftsmen . . . relative youngsters thoroughly qualified now—through engineering, planning, training, and tooling—to handle *few* jobs *extremely well.*

The same American Bosch engineering know-how that keeps our production line at top speed is also helping engine designers, manufacturers, users. In research, design, and production—war or peace—American Bosch serves all branches of the internal combustion engine industry. *American Bosch Corporation.*

AMERICAN BOSCH

AVIATION AND AUTOMOTIVE ELECTRICAL PRODUCTS . . . FUEL INJECTION EQUIPMENT



HERE'S the Saybolt Universal Viscosimeter, for testing viscosity.

OIL ANALYSIS . . .

(IN WHICH AN OIL MAN TELLS HOW FLEETS

THE first of a series of articles intended to acquaint fleet operators with the laboratory analysis services offered by leading oil companies. . . . Future articles will attempt to show how used oil analysis not only helps to determine proper oil-change periods, but also assists in detecting faulty operation or mechanical conditions.—Ed.

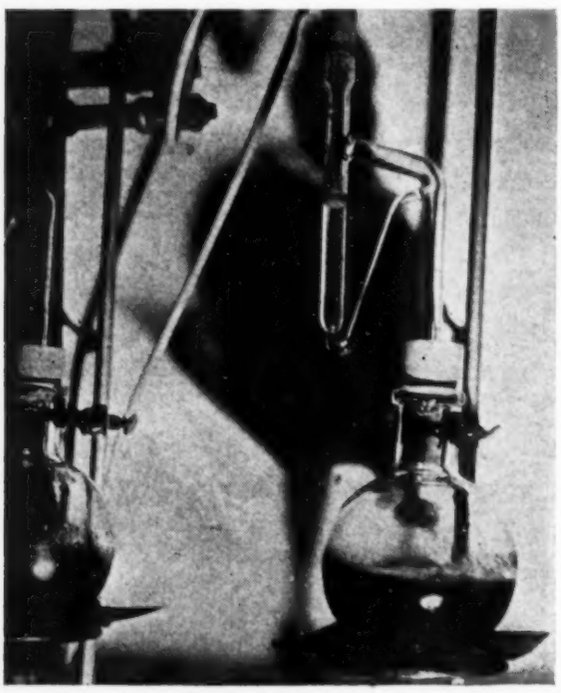
THE QUESTION, "When Should Oil Be Changed?" has been brought up from time to time in the Trouble Shooters' Department of this publication, indicating that fleet operators experience a definite need for help of some sort from the laboratories of petroleum companies throughout the country.

For example, a laundry fleet operator in New Jersey recently asked for a source of used oil analysis. An Indiana bakery fleet operator wanted to know just where he might send samples of used motor oil for analysis. No doubt there were others which the writer cannot recall at this time.

This indication of fleet operator interest in the co-operation of oil company laboratories has led us to draft this article, which it is hoped will be of interest to fleet operators everywhere.

Practically everyone who has charge of automotive equipment admits the need for changing crankcase oil at certain intervals. However, there is no subject more controversial than what the crankcase change period should be. The widely-voiced opinion that "oil never wears out" might well be our first thought, closely followed by the recommendations of vehicle makers and oil companies that "oil should be changed at stated mileage intervals." Some say 500 miles; some say 1,000 miles, 1,500, 2,000, 3,000 and even but twice a year.

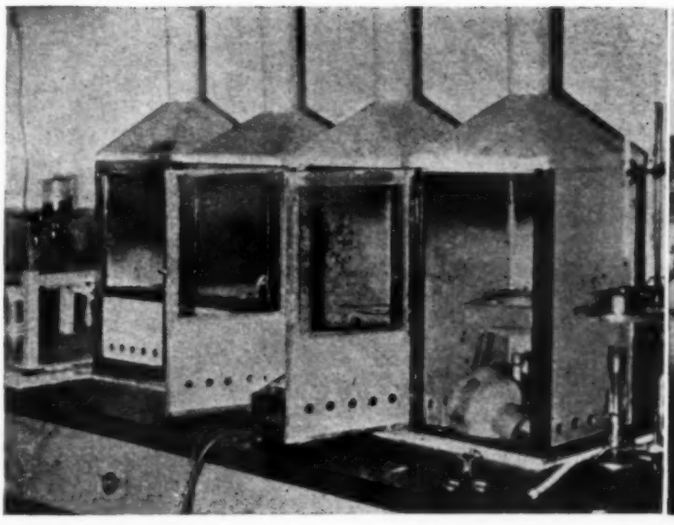
The great majority of fleet operators have conceded the vital need for proper lubrication. More recently, and particularly since the declaration of war, they are keenly aware of slow delivery on parts; as long as seven months hence in some cases. They know that new trucks are practically impossible to get. They, however, have certain buying habits and certain use habits. They resist change. They would like to buy oil as gold . . . . . 22 karat fineness . . . . by weight, etc. They look for some yardstick of crankcase oil quality. They ask fleet publications about the value of the viscosimeter. They listen to oil salesmen who claim this and that. They are confused by conflicting claims and boasts. They know what their present operation is. They do *not* know what any new oil might effect. They resist change. *They have found no real yardstick.* They may be satisfied with what they have, but as the emergency increases they are becoming more and more open-minded to improving their operations.



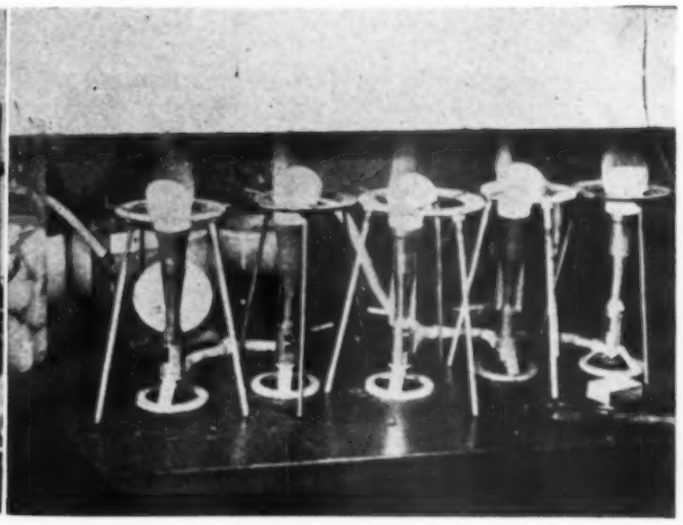
THIS apparatus is used for determining dilution content in accordance with A.S.T.M. recommendations.

When a group of units are operated as a fleet, and of a size to justify it, they are normally under the control of a master mechanic or maintenance superintendent, who specializes in the problems of efficient maintenance. (This is you.—*Ed.*) His wide experience with motor operation, and the problems of *his* fleet, qualify him. His experience is usually supplemented by trained mechanics and good craftsmen. Further, he may have much good shop equipment to diagnose trouble and to maintain excellent operating conditions.

Preventive maintenance is a term now widely heard.



HOODS house Conradson Carbon apparatus; open-cup test at right.



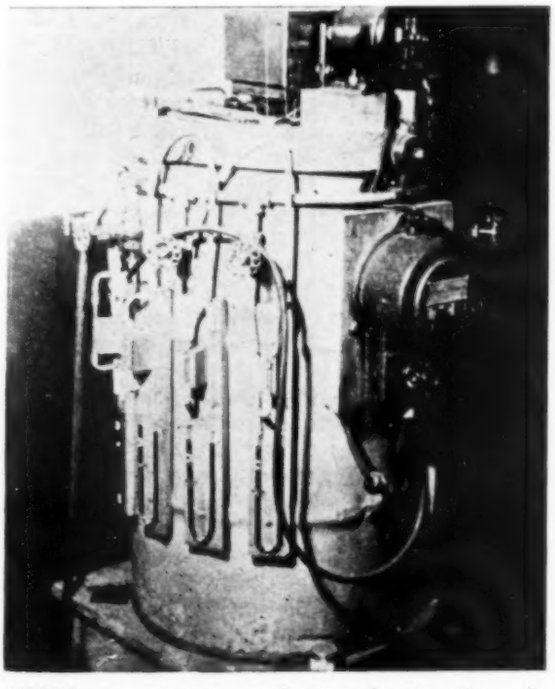
HEATING oil in these crucibles produces the ash determination.

WHAT IT IS . . . HOW IT WORKS

MAKE USE OF CRANKCASE OIL ANALYSIS SERVICES OFFERED BY OIL COMPANIES)

By L. A. Calkins,

Member, Society of Automotive Engineers,
National Association of Lubrication Engineers,
American Petroleum Institute.



HERE'S the apparatus used in performing the well-known Standard Oil of Indiana oxidation test. . . .

Through it, operating costs are reduced markedly. One of the greatest factors in preventive maintenance is the assurance of a continued supply of adequate lubricants. In almost every department of fleet maintenance modern ingenuity has developed special testing equipment to facilitate almost perfect maintenance; such things as battery analyzers, devices for insuring proper fit in reconditioned engines, for checking electrical operations, special tune-up outfits, brake testers, engine dynamometers, etc.

Unfortunately, *science has to date been unable to develop for the fleet operator any simple mechanism or piece of equipment which can tell him truly and exactly the condition of the lubricant in his unit, and thus aid him in determining the proper drain period and the proper service procedures to insure ideal lubrication.* To supply this need, some refiners offer a fleet laboratory service.

These plans, when effectively implemented with wide experience, aid fleet maintenance management in two ways. *First*, crankcase drainage is continuously examined to supply adequate, usable information on the condition of the lubricants in service. Background for this information, where it is really helpful, can only be developed by years of doing just this type of work. *Second*, technically trained field men, in extreme cases, examine the operation to help eliminate any causes of trouble. This trouble-shooting is not to exonerate the lubricant, but to find out *why* there is trouble and suggest a possible remedy.

Many fleets tend to drive the oil as far as it will go. Present war conditions may in some instances increase this trend. There, too, the conscientious refiner's aid is of paramount importance to every fleet. Such refiners desire neither that lubricants be discarded before their

(*Please turn to page* 58)

useful life is expended, *nor that they be retained in service beyond their useful life to the detriment of the equipment.* This counsel of the laboratory service can never be given on a routine or standardized basis. The application of the oil must be "tailor-made" for the fleet.

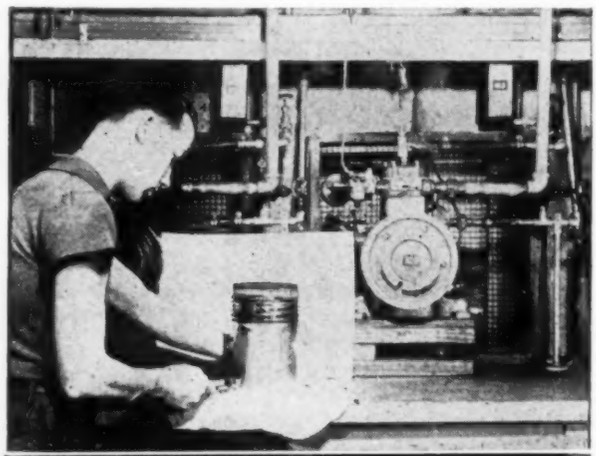
As is usually the case in fleet operation, good practice under one set of operating conditions would be entirely wrong under another. We do not feel competent to lay down any fixed time at which the oil should be discarded. We do believe, however, that a consideration of the general characteristics of used motor oils and the factors involved in the changes that we observe taking place in the oils in service, might be of some interest to anyone responsible for motor vehicle fleet operation.

First, we must look into the general characteristics of the used motor oil. After an oil has been in service in a gasoline-burning, internal combustion engine, such as a truck, bus or car, the following changes will most always be universally observed.

1. Viscosity will be decreased. Flash and fire-points will be lowered. Pour-points and specific gravity will also be lowered.

2. Varying increases in acidity, carbon residue, sulphur content and resinous material will occur. These will usually be accompanied by a darker color of the oil itself and a major increase in the ease of the oil's ability to emulsify with water.

3. Sludge, which consists of resinous material, carbonaceous matter, metals, metallic oxides, silicious materials and water, will tend to accumulate in different parts of the motor. Sludge, to a certain extent, will also be present in the used drained crankcase oil.



ABOVE: How oil company's laboratory technicians check parts after test-runs with various motor oils. . . . Small test-engine is shown in the background, all hooked up.

BELOW: Lou Calkins, author of this article, is a member of the S.A.E., American Chemical Society, National Association of Lubrication Engineers, National Petroleum Association, American Petroleum Institute, and chief engineer of Valvoline Oil Co., Cincinnati, Ohio.

Let us now consider how the changes above enumerated occur in an oil in service. For example, the lowering of viscosity, flash and fire, pour-point and specific gravity must be attributed to the presence of more volatile materials than are found in the original oils. These can occur in two ways. One, by pyrolysis —the cracking or breaking down of certain molecules in the oil itself, which forms lighter products; the other, dilution—which consists of fuel residues contaminating the oil.

Sometimes, too, viscosity is *increased* in used oil, over what is was originally. In this case, service in an internal combustion engine subjects the oil in service to great heat; this plus the scavenging system employed tends to increase the viscosity of the oil. Simultaneously with this action the oil is also subject to dilution. The end of viscosity of crankcase oils is normally lower than the viscosity of the new oil, but if the dilution is removed, together with oil disintegration products, then the oil's viscosity will be found greater than it was originally.

Any major increase or decrease in the viscosity of the crankcase drainage should be taken as a danger signal. The nature of the change is usually revealed by other types of tests. In general, it may be said that severe service tends towards increased viscosity, while light service tends to decrease the viscosity of the oil in the crankcase.

The increases in acidity, carbon residue and resinous material can be attributed to either oxidation of the oil itself, or to contamination with the fuel residue, or both.

The sludge, which consists of a collection of resinous materials, metals, metallic oxides, silicious materials, water and carbonaceous material, is held together by a resinous binder. It can be caused partially by oxidation of the oil, or it can be caused by contamination with the heavy ends from the fuel, or both.

The metals, metallic oxides and silicious materials in the used oil are traceable to wear or to road dirt which is breathed into the engine. Carbonaceous material and water can possibly be traced to oil breakdown or to fuel residues. Increased sulphur content must be caused by unburned or partially burned fuel residues reaching the crankcase, as this material is foreign to oil and cannot be produced from it, except in the case of oils from certain areas which are known to contain sulphur compounds.

The four factors then, that are involved in the deterioration of motor oil in service are: The nature of the oil itself; the fuel; the air, together with such impurities it contains; and the mechanism, that is, the engine itself.

To show specifically how the oil laboratory can help the fleet operator, let us run through an actual case-history, taking a sample of oil which was submitted by a fleet, and identified by the fleet as SAE 40, after 1,336 miles of service in a tractor-trailer combination.

Analysis of this sample of oil showed that it bore

(*Please turn to page* 106)

HERE'S HOW WE'RE DOING JOB No. 2 . . . FOR AMERICA'S TRUCK AND TRAILER OWNERS

YOU KNOW, of course, what our job No. 1 is . . and will be until the war is won. Thus far our plants, 100 per cent on war work, have built a total of thirty-eight different types of Trailers for military use.

But our job No. 2 is, in our eyes, a war job that is almost as important as job No. 1. And that is:

Helping America's Truck and Trailer Owners!

We can't, at present, build new equipment for you, but here are some of the things we are doing.

"The Man Behind the Wheel"—This driver-training sound-slide film helps you solve your man-power problem. This 30-minute picture is intended especially for beginners, but is useful as a "refresher" for experienced drivers. Such basic fundamentals as checking, coupling, double-clutching, turning, backing, etc., are covered. Hundreds of operators have used it in training thousands of Tractor-Trailer drivers.

"The Skill Behind the Man"—Another 30-minute driver-training film, supplementing the other picture and dealing with emergency conditions. It shows and tells what to do on slick pavements, on grades, on shoulders, in case of skids or blow-outs or bogging down. Safety and conservation are stressed. Showing of either or both pictures may be arranged, with no cost to you, through your Fruehauf Branch, or you may purchase the films and records at actual cost.

Driver-Training Booklets—To supplement each of the two driver-training films, booklets covering the subject matter of the pictures have been prepared. They enable your drivers to review and retain what they learn from the pictures. Booklets for your new drivers will be sent to you on request, at no charge.

ODT Daily Record Books—A simple, inexpensive Daily Record for your Certificate of War Necessity. A convenient pocket-size, the Daily Record forms are printed in books of 50 sheets, with a substantial cover. The cost to you is 2½ cents per book, in any quantity, f.o.b. your nearest Fruehauf Branch. This is our actual cost for a printing of several hundred thousand.

ICC Driver Log Books—Thousands of interstate operators depend on the Driver Log Books prepared by Fruehauf and sold at actual printing cost—6 cents per book. These forms provide for all details required by ICC regulations.

Envelope Stuffers—Reprints of messages dealing with problems of the motor transport industry and directed toward their correction are offered, without cost, for use as envelope stuffers or for any other good form of distribution.

Display Posters—These posters cover the same subjects as the envelope stuffers mentioned. Displayed in terminals, warehouses and other places, they help to keep the public and your own employees informed and, in turn, to benefit all motor transport.

Information on Federal Rulings—It is necessary, though difficult, for Truck and Trailer operators to keep informed on the many rulings from Washington covering motor transport operation. This information is organized, digested and sent to all Fruehauf Branches in a simple, easy-to-understand form, to be available to you at all times.

Service for All Makes of Trailers—Most important to you in war-time of all the Fruehauf activities is the nation-wide service organization with complete service facilities at about 50 strategically located points across the country. Service not only for Fruehaufs, but for all makes of Trailers, and a complete stock of Fruehauf parts is your assurance that your equipment will be kept on the road every possible minute.

FRUEHAUF TRAILER COMPANY ◆ DETROIT

World's Largest Builders of Truck-Trailers — *Member Automotive Council for War Production*

FRUEHAUF TRAILERS *"Engineered Transportation"* REG. U.S. PAT. OFF.

Two Plans to "Stretch" Existing Tools and Shop Equipment

AMERICA NEEDS ALL IDLE TOOLS!

MUCH has been written in the general press and in trade publications regarding the vital necessity for keeping essential cars, trucks, buses, tractors, etc., in proper working condition to keep American transportation facilities mechanically equal to their war-time tasks.

Reams of paper and barrels of ink have gone into editorials concerning the problem of man-power as it affects the automotive, truck, and bus fields; and the industry, through its various associations and with the help of the trade publications, has finally made its man-power shortages apparent to the government to the point where certain types of automotive maintenance mechanics are now likely to be recognized as "essential" war workers.

This belated recognition will not, however, ease the scarcity of well-equipped, skilled mechanics throughout the nation's automotive repair shops where many mechanics have already left the garage for work in other industries which, at first glance, seemed to them to be of greater value to the war effort—where mechanics, in some cases, have been pirated by defense industries or unduly pressured into changing occupations — and where mechanics of military age have joined the military services.

The only answer to this problem is the employment of older men with auto mechanic experience, the training of other men who may be draft exempt, and the more intensive use of women. The last two groups, of course, requiring special training, which takes time.

This is not an insurmountable problem. Men and when necessary, women, can be trained to do an efficient job in the repair garage as well as in the defense plant; and though the methods may vary in different shops or localities, the mechanic problem will *somehow* be met and solved.

The training and use of new mechanic help, however, brings up another serious problem—one which has not been publicized and which apparently has been overlooked by industry and government alike.

A mechanic, no matter how highly trained, is helpless without hand tools with which to work . . . and the shortage of wrenches and hand tools grows ever more critical. The established mechanic with a complete tool set inevitably experiences wear in certain tools to the point where they become useless or dangerous to work with. Even the best of wrenches will break occasionally under excess leverages; others get lost; and replacements of these tools are a vital necessity to the efficiency of the mechanic . . . he cannot tighten a 9/16" nut with a ½" wrench!

The hundreds of newly-trained garage mechanics must also have wrenches and hand tools, even though a limited selection, with which to carry on the transportation maintenance work formerly handled by those better equipped mechanics now lost to the industry.

Our armed services also need tool equipment—in enormous quantities — and these requirements must come first, which makes it virtually impossible for the wrench and hand tool industry to furnish immediately *all* the tools urgently needed by the car, truck, and bus mechanics on the home front.

When a factory worker quits, his employer usually loses only the worker's services; but when a garage mechanic leaves his job for military service or to enter an industrial plant, the garage trade loses both a valuable man and an almost irreplaceable set of vitally essential tools.

In view of the critical shortages of new tool equipment, to allow that set of tools to be taken out of the shop and packed away in some attic, or left to rust away by disuse in some basement corner, is a very disturbing condition. And yet there must be literally thousands of such tool sets scattered around basements and attics and otherwise stored away by the men who have for military or other reasons left their former garage work.

The questions that come naturally to mind are. . . .

(*Please turn to page* 100)

Tough . . . but oh so gentle

Trucks are in this War, too

Every truck is a vital war machine. It must not fail in its duty.

Now, more than ever, the piston rings must be watched — and changed at the first sign of failure.

The right rings, installed at the right time, will prevent undue cylinder wear, save oil, save gasoline, prevent lay-up.

Hastings Steel-Vent piston rings have won great favor among fleet operators because of their reputation for long life and economy, in all kinds of cylinders — rebored, resleeved or extremely tapered.

Install Steel-Vents — and keep 'em rolling.

HASTINGS MANUFACTURING COMPANY, HASTINGS, MICHIGAN
Hastings Mfg. of Canada, Ltd., Toronto
PISTON RINGS • PISTON EXPANDERS • VALV-RINGS

HASTINGS

STEEL-VENT PISTON RINGS

Tough on oil-pumping · Gentle on cylinder walls

HOW *the* ARMY TRAINS DRIVERS.....

THE ISSUE of modern warfare is frequently decided, not alone in the clash of steel monsters at the front, but in the long, snaky roads leading far to the rear—decided amid the scream of dive bombers attacking endless convoys of trucks lumbering toward the front.

For trucks—dirty, clumsy, ugly trucks—have become a veritable symbol of the war of movement. It is trucks which bring up the food, shells and soldiers to shifting battle lines—trucks which press doggedly forward over impossible terrain, along refugee-jammed roads, through mud and dust.

When a truck breaks down it pulls out of line; if it can't be repaired, its load is transferred; if it is blown to bits, the wreckage is cleared away. But the convoys keep moving; always forward.

THIS steep incline follows a water-and-mud hazard as part of the rigorous training program. . . . The obstacle course is shown at top.

Some of the boys who will keep these trucks rolling —tomorrow, next month, next year—are now being trained at Camp Lee's Quartermaster Replacement Training Center, in the Operations Division of the Motor Training Section. Under a training program conceived by Col. J. H. Johnson, director of Motor Training, thousands of soldier-drivers have already been taught the skill and team-work required for the operation of a modern army's thousands of trucks. This training is directed by Lt. Col. J. E. Mutty, with the assistance of Capt. Victor Weimar, executive officer, and Lt. George R. Britton, plans and training officer, and a staff of officers experienced in motor transport.

The organizational unit of the truck drivers' school is the provisional truck company, a military unit complete with company commander and permanent cadre of skilled personnel. During technical training, these companies are mobile units, operating in the field, and directed from field headquarters in a tiny trailer.

Corresponding to the first sergeant of a regular company, the truck master's job is to see that the trucks are kept in running order and that each man completes the various phases of his training. He supervises the daily inspection of the vehicles and directs minor repairs by the two mechanics attached to each company.

Driving trucks is a more complicated matter. On his arrival, the student driver takes a psychological test, which utilizes questionnaires, and several ingenious machines for measuring visual keenness, nerve stability, and aptitude for night-driving.

Through class-room lectures, the student learns a variety of subjects, including nomenclature, road rules and safety precautions, hand signals, map reading, fuel consumption, efficient loading, rope hitches, care and repair of tires. Care and improved construction, for example, have increased the average life of a tire from 6,000 to 40,000 miles.

Outside the class room, soldier-drivers "learn by

(*Please turn to page* 100)

Depend on your Kelly Dealer for
THE 3 R's—
As a war-worried truck operator, you have more miracles to perform than is humanly possible. One problem that really need not cause you much trouble is tires. Just call in your Kelly Tire Dealer. He is a specialist in the 3 R's of the Tire Business:
REPAIRS—minor cuts or hidden bruises, slow leaks, valve trouble, wheel irregularities... all quickly remedied by a man equipped and trained to make commercial tires last.
RECAPPING—expertly applied "wigs" for your "baldies". Your Kelly Dealer will gladly check your tires and tell you when they're just right for recapping.
REPLACEMENTS—the right size and type tire for your particular needs. Tough, time-tested Kelly Truck Tires still provide plus performance under today's regulated operating conditions.
Kellys are Tough!
KELLY
Springfield
TIRES

S. A. E. WAR CONFERENCE REVIEWS FLEET PROBLEMS

IN ADDITION to tackling the problems of design and production of armament and ordnance materials, the Annual Meeting of the Society of Automotive Engineers, held in Detroit last month, recognized today's vital problem of keeping essential transportation equipment rolling for the duration. For your convenience we are digesting in this report a number of the papers presented, which we think are of pertinent interest to fleet operators at this time.

Preventive Maintenance: E. N. Hatch of American Brakeblok Division, outlined an entirely new and thorough program of preventive maintenance, as a result of a program started jointly by the SAE and the ODT. He reported the preparation of a standard basic plan of preventive maintenance, designed to indicate what, when, and how work should be done to obtain the maximum reliable service from each vehicle at the minimum cost despite the shortage of mechanics, the difficulty of getting parts, and the temporary impossibility of replacing worn-out vehicles.

The SAE-ODT Committee has worked out a simple, concise, and flexible system to extend motor vehicle service life and save replacement parts and labor. All important parts of motor vehicles have been divided into alphabetically arranged groups, required maintenance service has been divided into five types, and detailed descriptions of how to make adjustments, tests, lubrications, light and heavy inspections, and repairs are being pushed to completion.

The five types of service—Daily Requirements; Lubrication and Light Inspection; Heavy Inspection, Adjustments and Repairs; Heavy Repairs and Replacements; and Complete Reconditioning — already are standardized, and work currently is being done to develop standardized test procedures from the experiences of fleet maintenance engineers, recommendations for oiling and greasing from lubrication engineers, schedules for servicing and repairs from the combined experiences of fleet operators, and methods of making adjustments and repairs from manufacturers of equipment.

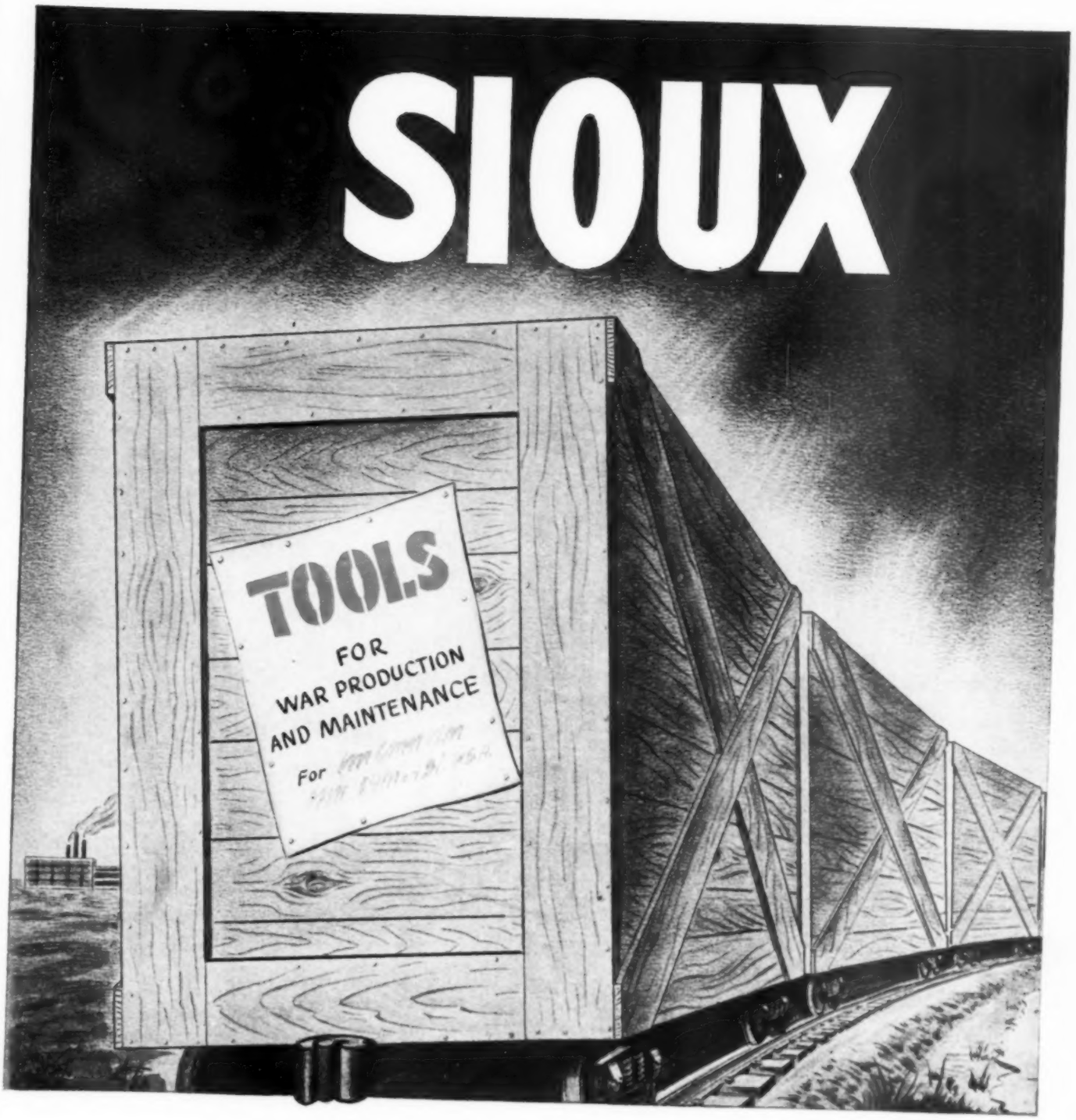
Recalling that replacement of vehicles to avoid repair costs is impossible for the duration, Mr. Hatch declared that "under present conditions, it is absolutely essential that the best methods of preventive maintenance and inspection procedure be continually practiced to keep all vehicles now in existence operating, if the maintenance men of this country are to do their part in winning the war."

Current Motor Fuel Problems: Petroleum engineers participating in the SAE meeting declared that commercial motor vehicles can operate satisfactorily on fuels of as low as 65-octane, without major engine changes or adjustments.

This opinion, which was based upon a series of tests of lower-octane fuels in commercial motor vehicles, held that there were no significant differences in fuel consumption or power output between 72- and 65-octane commercial gasolines. Effects of the reduction in octane number, such as the general 1941 drop to 71-72 from 75-76, were said to be more severe on commercial vehicles than on passenger cars, but if spark timing properly is retarded there is no important change in fuel economy or power production in heavy-duty service.

Retarding the spark timing appears to be the most satisfactory method of compensating for reductions in octane numbers, it was reported in a paper prepared by D. P. Brenz, H. H. Maxfield, and A. B. Culbertson, all of Shell Oil Co., and presented by Mr. Brenz. He said the tests included operation of five tractor-trailer transport units over 1,200 to 2,500 mile runs, during which none of the drivers detected a difference in performance betwen 65- and 72-octane gasolines, although tests under controlled conditions indicated a five per cent power loss.

(*Please turn to Page* 110)



We also are sticking to our "last"

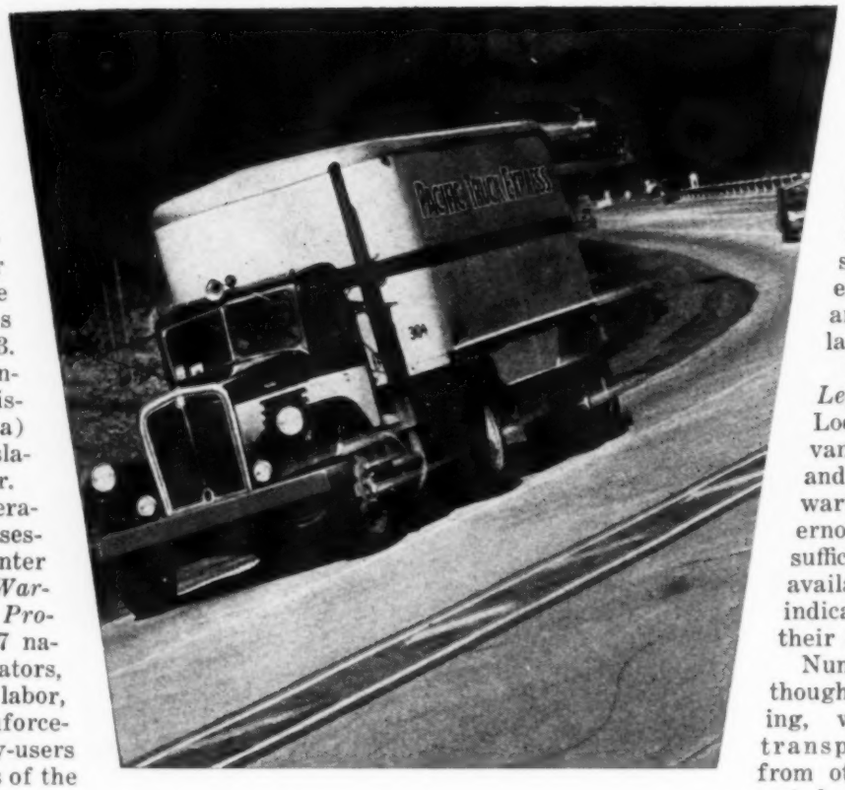
The age old and wise adage "Shoemaker stick to your last" symbolizes the 100% war effort we are making in the manufacture of SIOUX TOOLS for the speedy production and maintenance of war equipment, such as Aeroplanes, Tanks, Trucks, Jeeps, etc.

We are doing the job for which we are unusually fitted by knowledge and experience, plus the best of equipment to do it speedily and better. The high standard of SIOUX TOOLS is being maintained in our war work and will be reflected in our peace time effort.

SIOUX TOOLS are built to give lasting service. Yours will last longer if given a little care.

STANDARD THE WORLD OVER

ALBERTSON & CO., INC. SIOUX CITY, IOWA, U. S. A.



LEGISLATIVE OUTLOOK

By Chester H. Gray,
Director,
National Highway Users Conference,
Washington, D. C.

WARTIME developments in the highway transportation world are expected to make their impact on the 44 state legislative sessions scheduled for 1943. Only four states (Kentucky, Louisiana, Mississippi and Virginia) have no regular legislative sessions this year.

Slated for consideration in virtually all sessions during the winter and spring is the *"Wartime Highway Traffic Program"* endorsed by 27 national groups of educators, farmers, organized labor, traffic engineers, enforcement officials, highway-users and others. Objectives of the Program are:

1. Conservation of the current critical stock of vehicles, tires, and roadways.

2. Conservation of man-hours and man-power through accident-prevention.

3. Most efficient use of roads and vehicles for essential transportation.

Methods of achievement include (a) official agencies, Federal, state and local, to cordinate and carry out the entire program, each maintaining sufficient personnel to discharge its vital responsibility; and (b) cooperation of non-governmental organizations to mobilize public participation and support.

The recommended Wartime Highway Traffic Program embraces legislative action, motor vehicle administration, police control, engineering, public participation, training of drivers and traffic personnel.

Extraordinary Powers For Governors: Another state legislative outgrowth of the rubber shortage is a uniform bill proposed by the Office of Defense Transportation in cooperation with the Department of Justice and actively promoted by the Council of State Governments to give individual state governors extraordinary wartime powers to regulate highway transportation.

Designed for introduction in all state legislatures, the Federally-inspired measure would empower governors to: (1) prescribe staggered hours of employment; (2) prescribe maximum rates for speed of motor vehicles; (3) prescribe sizes and weights for motor vehicles; (4) suspend the application of license fees or licensing requirements covering the entry of certain out-of-state vehicles properly licensed in another state; and (5) direct the conservation of vital equipment, materials and supplies; particularly rubber.

Other Emergency Legislative Proposals: Local reception of advance reports of this and other extraordinary wartime powers for governors is varied with insufficient information available at this time to indicate the chances for their enactment.

Numerous additional, although partially duplicating, wartime highway transportation proposals from other sources are reported under pre-legislative consideration in many states. These include:

(1) 35-mile speed limit: (Arkansas, Delaware, Illinois, Maryland, Oklahoma, Texas and West Virginia).

(2) Increased gasoline or other highway-user taxes to replace revenues lost from diminishing motor vehicle use: (Colorado, Florida, Indiana, Iowa, Kansas, Maine, Nebraska, New Mexico, Oklahoma, and Rhode Island).

(3) Ear-marking highway fund surpluses for post-war purposes: (Arizona, Arkansas, Connecticut, Massachusetts, North Carolina, Utah, Vermont and Washington).

Demands for limitation of emergency highway transportation restrictions to the duration of the rubber shortage only, are reported from Arkansas, Connecticut, Georgia, Maine, Massachusetts, New Hampshire, New Jersey, North Carolina, Rhode Island, Texas and Vermont.

Faster Synthetic Rubber Production Wanted: Memorials to Congress urging greater speed in the production of synthetic rubber for military and civilian use are expected to be proposed in Alabama, Arkansas, Georgia, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee and Texas.

Increased efficiency of wartime highway transportation through extension of motor vehicle reciprocity or enactment of more scientific sizes and weights limitations is being advocated in Alabama, Arkansas, Colorado, Connecticut, Illinois, Indiana, Iowa, Maine, Massachusetts, Minnesota, Missouri, Montana, Ne-

(*Please turn to page* 108)

HEART of TIRE conservation is BEAR *Alinement Service!*

and Steering Parts!

BEAR Alinement and Balancing Stops "Parts Sabotage" as well as Tire Waste!

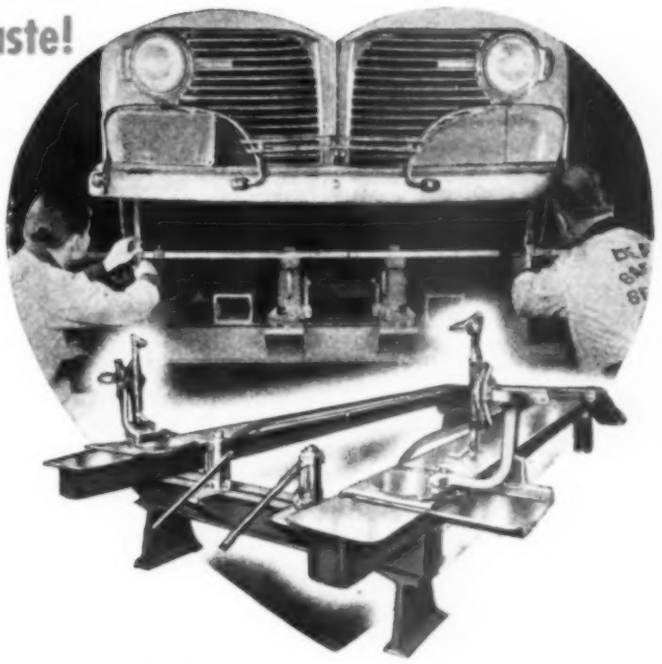
Every car . . . truck . . . bus . . . out of alinement or with unbalanced wheels is sabotaging precious spindle bolts, bushings, shackles, universal joints, drag links, shock absorbers, knee action units, tie rod ends, balls and sockets—as well as increasing the general wear and tear on every part of the vehicle!

When you do a wheel alinement and dy-namic balancing job, you are helping to save thousands of plant man-hours required to manufacture new parts . . . you are saving steel . . . saving vital transportation space for materials of war!

All this you do besides saving cars and trucks from the junk heap . . . tires from premature wear . . . and cutting down car damage, loss of life and injuries resulting from accidents due to unsafe driving.

So it's a real job you are doing . . . an important war job . . . when you render Bear Alinement and Balancing Service! Every time you talk up this service to car owners and truck operators you are serving your country!

WARNING! Don't let any alinement job go out of your shop without the wheels dy-namically balanced on a Bear Dy-Namic Wheel Balancer. The job of tire conservation isn't complete without it! If you haven't a Bear Balancer, see your neighbor who has, and make arrangements with him to do your Dy-Namic balancing.



Send Your Questions to Alinement Headquarters. Write today for your copy of

FREE ALINEMENT MANUAL

BEAR MFG. CO., ROCK ISLAND, ILL.

Greatest Name in Wheel Alining and Balancing!

BEAR

WHEEL ALINERS AND DY-NAMIC BALANCERS

Frame and Axle Straighteners • Alinement Testers • Shimmy Detectors • Wheel Straighteners, Etc.

GETTING their first worm's-eye view of a motor truck are these 23 young women in Chevrolet's first lubrication school for women, conducted recently in Oakland, Calif. . . . Under the direction of zone service personnel, these girls were trained to be fully qualified "lube" experts. . . . All of them are now at work in west coast Chevrolet dealerships, tis said.

WOMEN MAINTAIN BRITAIN's FLEETS

•

ODT's SPECIAL INVESTIGATOR RETURNS FROM ENGLAND WITH FIRST-HAND REPORT AS TO HOW FEMALE LABOR IS BEING SUCCESSFULLY USED

WHEELS of transportation in Great Britain have been kept moving only by the widespread employment of women. That is the report of Miss Dorothy Sells, of the ODT Division of Transport Personnel, who has just returned from England where for the past several months she has studied the utilization of British women to meet manpower shortages in the transportation industries.

GIRLS are piloting big Mack buses out California way. . . . Shown here is Blanch Willis, one of 15 employed by San Diego Electric Railway Co. . . . The girls are popular and do a very good job of driving.

As representative of the ODT, she conferred in the past months with government and railway officials and interviewed employees of the major railways, bus, motor carrier and airway lines in Great Britain. Through the various British Ministries and many private individuals she found out first-hand what British women are doing in transportation. She saw women working on the railroad tracks, laying rails, oiling switches, and painting bridges while they hung onto scaffolding high above the water. She saw women bus operators take out their buses on early morning runs before the blackouts ended. She was in subways in the hours after midnight while women "fluffers" removed grease and dirt from the rails when the trains were not in operation. She watched women work in the maintenance shops of the railroads, the bus lines and in the hangars of the airlines.

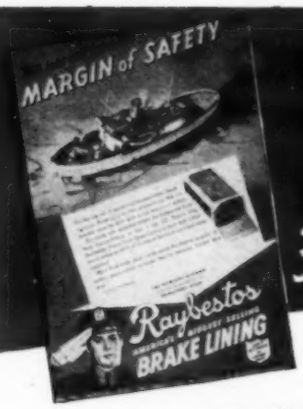
"One sixth of the employees of the four main railways of Great Britain are women, while thousands more are engaged by the London Passenger Board which manages the bus, subway and street car systems of metropolitan London; by the great motor carriers; the bus and street car lines in other parts of the country; and by the aircraft maintenance depots. Shipping is the only branch of transportation from which women at the present time are excluded. While the greater number are engaged in unskilled and semi-skilled jobs, a good many are doing highly skilled work," Miss Sells reported.

"The repairing of buses, locomotives and passenger and freight railroad cars calls for much heavy work requiring physical strength and a degree of mechanical skill which are unknown in the repetitive jobs customarily assigned to women in production plants," Miss Sells said. "But the acute-manpower shortage created by the present war, together with the recent developments of new mechanical lifting devices and the process of breaking down jobs into simple operations has now made it possible to employ women on work which transportation experts would have previously thought impossible. Indeed, as a result of all I have seen in Great Britain, I have come to the conclusion that with the right woman in the right job, with sufficient training and intelligent supervision, there is almost no limit to what a woman can and will do, except the limitation of her own strength, and even that increases gradually with use. Some jobs, of course, require a degree of experience and judgment which time alone develops.

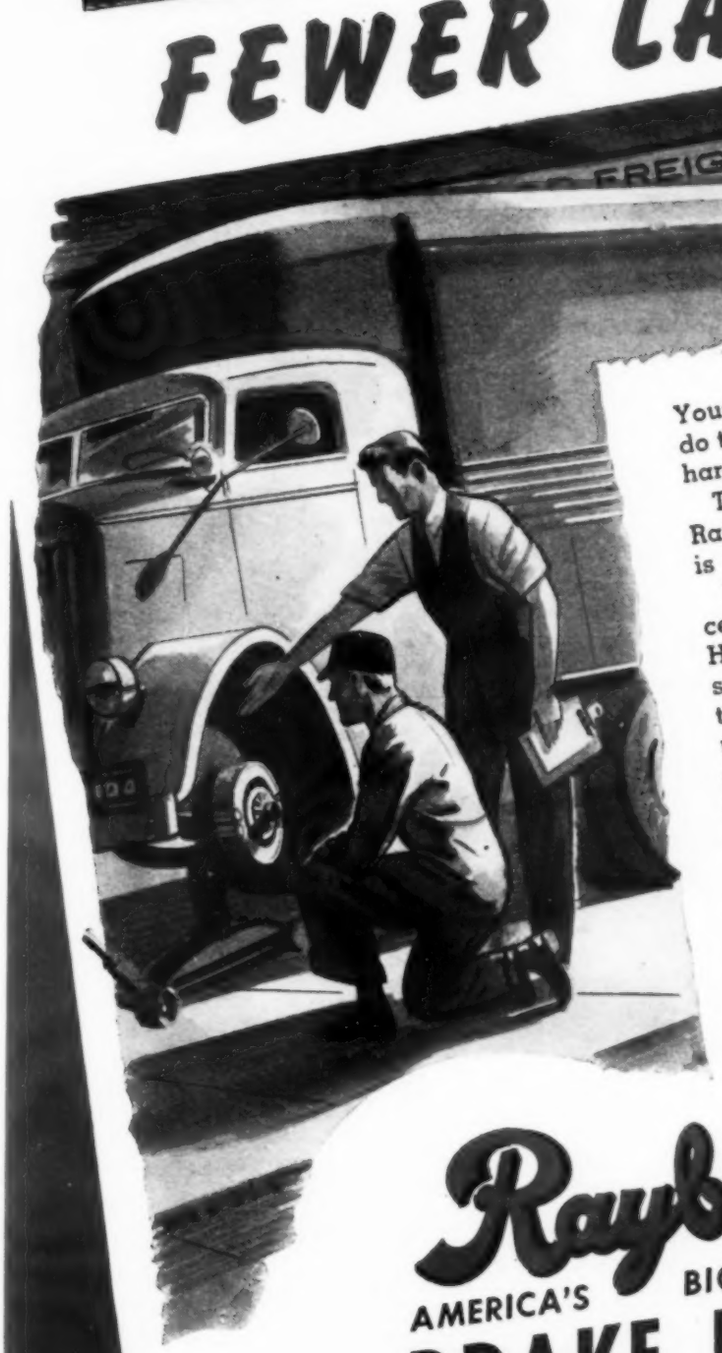
"I have observed that success with employing women in what may be termed men's jobs depends to a large extent upon the attitude of the management from the top down. If they are accepted wholeheartedly, if much is expected of them, if they are disciplined and yet treated humanely, they will, with rare exceptions, surpass the highest expectations of the management.

"With women in transportation, the first six months are the hardest. To teach an inexperienced woman a mechancial job requires

(*Please turn to page* 109)



300% Margin of Safety means FEWER LAY-UPS



Your trucks have a tougher job to do than ever before. They must work harder and live longer.

That's why the advantage of Raybestos Heavy Duty Brake Lining is more important than ever before.

Because it is built with a 300 per cent margin of safety, Raybestos Heavy Duty Brake Lining withstands speeds, loads and constant temperatures far greater than encountered under the most severe operating conditions . . . thus resulting in fewer lay-ups, longer life, lower operating costs.

For today's vital win-the-war job, give every truck in your fleet Raybestos' margin of safety performance — now.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc.
BRIDGEPORT, CONN.

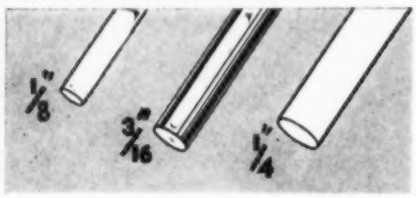
Raybestos
AMERICA'S BIGGEST SELLING
BRAKE LINING

BRAKE LINING, CLUTCH FACINGS, FAN BELTS, HOSE • FOR CARS, TRUCKS, BUSES, TRACTORS • ON THE WAR AND CIVILIAN FRONTS

SHOP HINTS

USE LESS ROD SIZES

● Welding rod is made of scarce and critical materials and all of us are urged to reduce the number of rod sizes we use, when next ordering rod.



If, for example, you normally order rod in sizes of ⅛, 3/16 and ¼ inches, perhaps you can operate equally well by eliminating the ⅛ and ¼ inch sizes.

When the rod sizes that you normally require are not readily available, use what you have or can get. This avoids delays and reduces the amount of welding rod tied up in your inventory.

●

NEW BOLTS OR BEARINGS?

● The ODT will get after you if you neglectfully permit rods to get busted up like the one shown in the picture. The sad ending of this one is attributed to an item so easy and often overlooked, the connecting-rod bolts and nuts.

While it's not so easy to get new bolts and nuts, and we shouldn't be extravagant and insist on new ones with every overhaul job, the ruined rod illustrated here got that way because old, weakened bolts and nuts were used to "button up" the overhaul job.

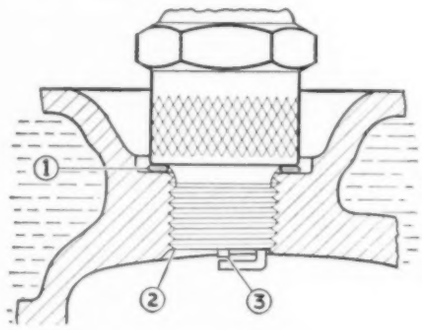
One of the leading parts makers points out that in a 3½ x 5-inch engine, at 3,000 r.p.m., the maximum stretching force on con-rod bolts and nuts exceeds 5,000 lbs. This stretching ultimately reduces bolt diameter, most noticeably above the threads, and sometimes so badly that it is visible to the naked eye.

The use of a bolt thus stretched permits the rod bearing cap to move slightly in relation to the rod, causing bearing failure. The most common defect, they tell us, is to find stripped or mashed threads of both bolt and nut, caused by over-tightening or failure to remove the cotter-pin. However, most nuts are ruined by the use of the wrong size or type of wrench.

Well, now you can lie awake nights, wondering if you buttoned up that last overhaul job with a stretched and weakened bolt in its system. We are wondering whether, in today's period of extreme conservation, it is still in the best interests of the war effort to replace doubtful rod bolts with new ones, rather than risk a more expensive and parts-consuming breakdown later on, like the one illustrated. . . . You try and get the new bolts and nuts—and we'll try to find out from ODT just which course it is wisest to pursue.

●

RIGHT WAY TO DO IT

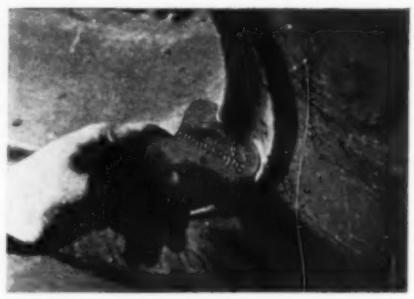


● Maybe every one of us knows how to install a spark plug, yet there is a right way and a wrong way of doing it, according to Champion engineers. The accompanying sketch shows everything *right*, as follows:

Referring to the sketch (1) is the gasket, which should be firmly compressed, making proper seal between plug and head, eliminating gas leakage and plug overheating. (2) indicates that the right plug is being used, at least from the standpoint of size, if not heat-range, as there are no exposed threads to permit formation of a hot spot. (3) shows that the spark gap is in its proper location in respect to the combustion chamber —right in the gas stream for complete combustion.

MUST USE A RIM GAUGE

● This—to those who are not familiar with it—is a rim gauge. It is



used to determine the rim size, so that you can tell at a glance, without dismounting the tire, whether your rims are the proper size for the tires used.

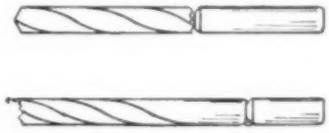
Note that the rim gauge has five or six different curvatures, the contours of which are marked to correspond with those found on different rim sizes. Using it as shown enables you to become a "rim expert" in practically no time. This particular one bears the Goodrich name, but we imagine that most of the tire companies can furnish them.

●

SHOP HINT—ONE MAKES TWO

● What to do when a valuable drill breaks? Why, make two out of it, of course, according to C. M. Andres, a welding enthusiast, reporting in "*The Stabilizer*".

The sketches show how the trick is done. This happened to be a large diameter drill, very long. When it was broken through carelessness, Mr. Andres welded a piece of bar stock of the same diameter to each of the two broken pieces, using "Fleetweld



5" electrode. Sharpening the ends makes them work like new.

These drills are used for drilling hard wood and new ones often break in the same place. The welded ones are standing up quite satisfactorily, according to the contributor of this little shop hint.

Dear Joe:

The shop doesn't seem the same since Uncle Sam sent you on that "Mighty Mission"—but, maybe that's because we've got twice as much to do and fewer hands to do it. Trucks have an around-the-clock job to do, and the cars to carry war workers are important, so we're kept on the jump keeping old motors young and tired transportation in shape. Believe me, the mechanics of America are doing a real job keeping the wheels in the factories a-spinning and the wheels on the road a-rolling.

Parts and tools are scarce and no one is wasteful or careless these days . . . a screw driver is a screw driver, and not a pry bar. But there's no complaint, because we all realize that you fellows at the front need the tools, and we're glad to do without so you can get them. The boss has even set up a good system which the Armed Services have requested . . . *when a man leaves for the Army or a war plant job, the shop buys his Tools so they won't lie idle.*

You certainly were right, Joe, when you told me to buy New Britain Tools. Now I realize why you were so sold on them. That slogan—"Greater Strength—Better Fit" means a lot now. The Tools we are using on today's repair jobs to keep America's wartime transportation moving, s'mply must *last* for the duration.

N·A·P·A
National Automotive Parts Association
Assurance of Quality

New Britain Hand Tools are sold by leading Jobbers everywhere, and master stocks are maintained in 38 NAPA warehouses from coast to coast.

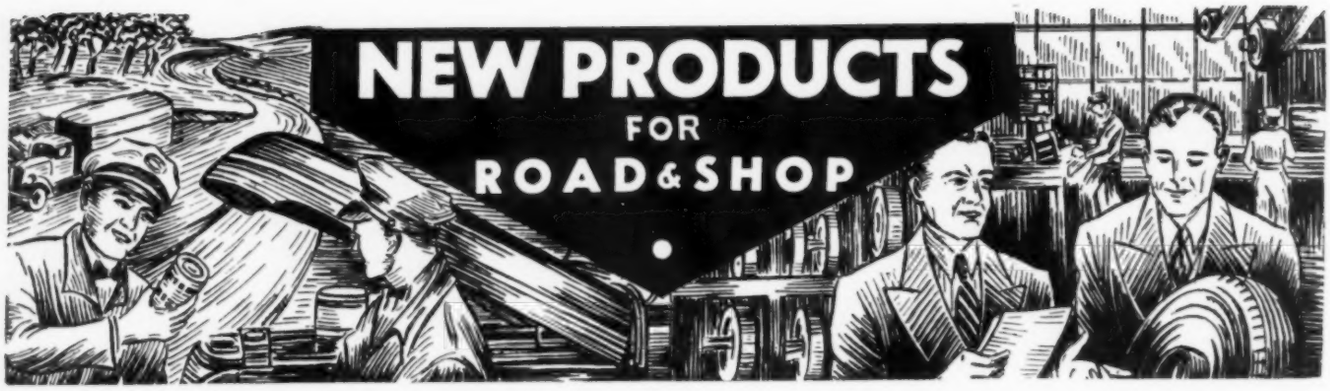
THE NEW BRITAIN MACHINE CO.
New Britain, Conn.

ARMY E NAVY

THE ARMY-NAVY "E" PENNANT flies over the New Britain plant today, signalizing outstanding performance in the production of machine tools, aircraft engine parts and projectiles.

New Britain TOOLS

GREATER STRENGTH · BETTER FIT



(Use Post-Card—p. 82, for More Data on Any that May Interest You)

New Federal Calendar

AGAIN the Federal Motor Truck Company makes a bid for truck owner interest by the issuance of the new "Miss Federal" calendar, shown here.

This is the third successive calendar carrying Federal's theme. This year the "Miss Federal" calendar is not restricted to providing a lovely girl illustration plus a daily date record, but its usefulness goes a step farther, in presenting a valuable weights-and-measures table of trucking payload items—a time-saving, ready reference covering every type of material and product hauled by truck. The usefulness of this chart which covers everything from apples to slag, providing cubic displacement and weights, is quite apparent.

Each of the twelve monthly calendar pages carries a timely and patriotic appeal that keynotes a spirited reminder of our country's war-time needs. The background is done in ten colors. Fleet operators and motor transportation men may obtain the "Miss Federal" calendar without charge or obligation by writing to Advertising Department, Federal Motor Truck Company, Detroit, Michigan. . . . Mention of FLEET OWNER always helps.

•

Wartime Care of Batteries

VALUABLE hints on the care of storage batteries, whether in industrial use or in automotive service, are given in the current issue of the industrial edition of *Exide News*, under the heading of "The Great Devourer".

Free copies are available to plant executives, fleet maintenance men, and others who are interested. Address: The Electric Storage Battery Company, 19th St. and Allegheny Ave., Philadelphia, Pa. . . . . You'll mention FLEET OWNER, won't you?

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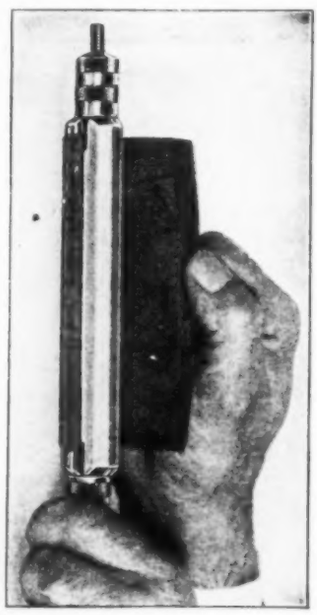
Lisle Piston-Pin Hone

BETTER pin fits, quicker and at less cost, are promised by the makers of the Lisle Piston-Pin Hole Hone shown here.

It comes complete in steel case with



a dozen abrasive fillers and shoes to handle bores from .730 to 1-3/32 inches. Four or five thousandths of an inch can be removed per minute in either bronze or alloy, it is claimed, and the abrasives can be changed in less than a half minute. Positive accuracy is promised.

Additional shoes can be furnished to fit this pin-hole hone, to accommodate all pin sizes from .710 to 1-7/16 inches. An automatic take-up keeps the abrasive smooth and prevents accidental oversize or bell-mouthing. The body of this tool is of one-piece, heat-treated steel.

A handy foot-switch is also offered, for use when these hones are used in electric drills, as is usually the custom. The foot-switch can also be used for controlling cylinder hones, electric drills, bench grinders and other tools.

A 4-page folder covering this and other Lisle tools will be sent free on request. . . . Address the Lisle Corporation, Clarinda, Iowa, and mention FLEET OWNER for prompt service.

•

Goodrich Throttle-Stop

THIS new device is called the Goodrich "Speed Warden." It consists of a spring-loaded extension that is to be attached to the accelerator pedal of any vehicle.

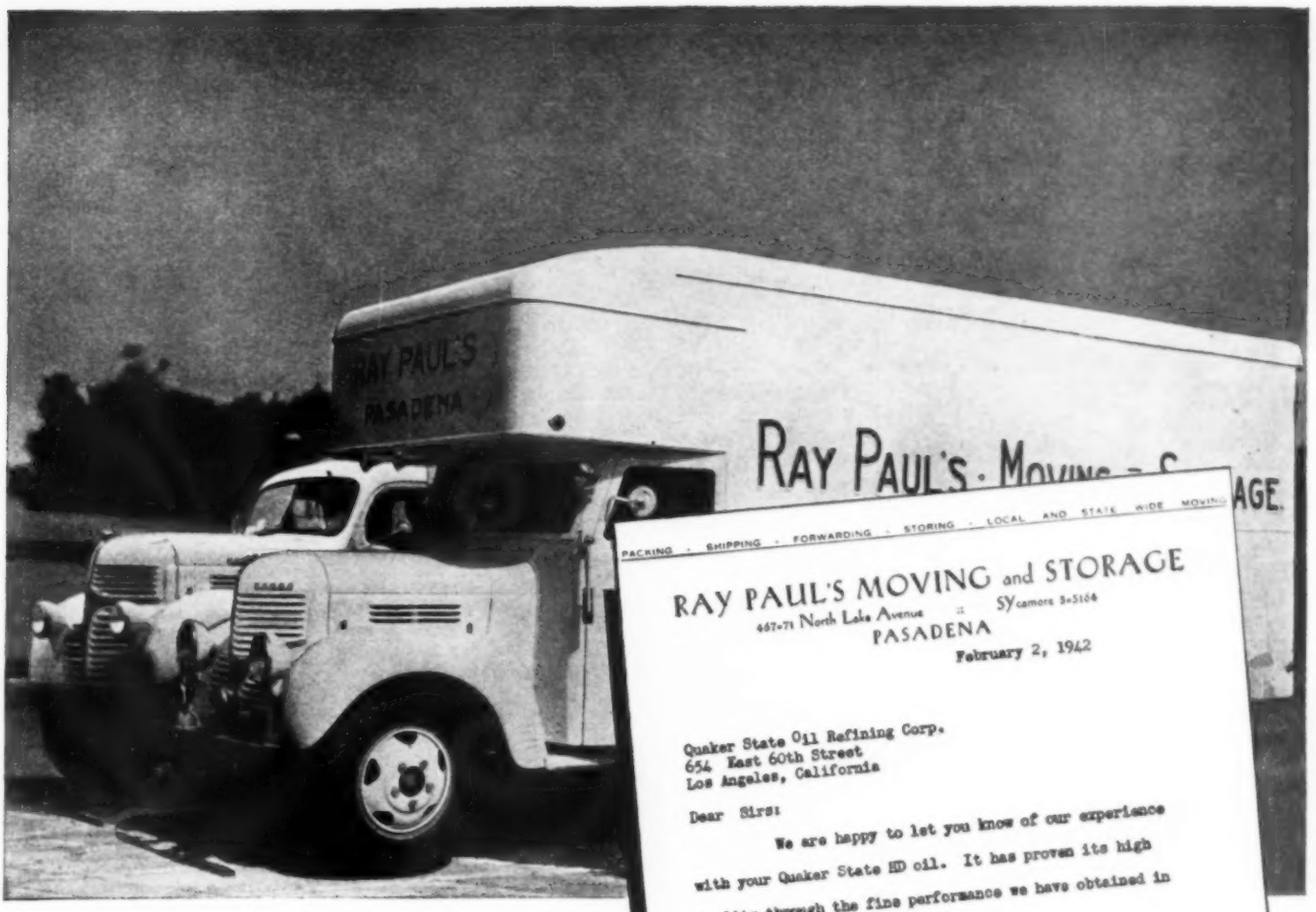
After attachment, adjustment is made in its length, to permit a throttle-opening corresponding to a 35 m.p.h. speed on level road. Further accelerator pedal travel is permitted, but greater pressure is required, as at the adjustment point a spring-loaded plunger comes into play, allowing full throttle opening, but at a *much heavier* pressure.

Thus, the "Speed Warden" is expected to serve as a constant reminder that one should not exceed the 35 m.p.h national speed limit. When it is necessary to travel at greater speed, such as in passing vehicles or other emergencies, extra pressure enables the desired speed to be reached.

The principal aim of Goodrich in announcing this new device is to conserve rubber. It is *not* a governor, but is just a "simple device to help observance of Jeffers' request that

everyone be his own policeman," according to Goodrich officials.

The list price is astonishingly low, and installation can ordinarily be done without any tools other than a small wrench and screw-driver. . . . For more details address B. F. Goodrich Company, Akron, Ohio. . . .You'll mention FLEET OWNER, won't you?



PACKING · SHIPPING · FORWARDING · STORING · LOCAL AND STATE WIDE MOVING

RAY PAUL'S MOVING and STORAGE
467-71 North Lake Avenue :: SYcamore 3-5164
PASADENA

February 2, 1942

Quaker State Oil Refining Corp.
654 East 60th Street
Los Angeles, California

Dear Sirs:

We are happy to let you know of our experience with your Quaker State HD oil. It has proven its high quality through the fine performance we have obtained in our fleet of Dodge and Chevrolet trucks.

We know our maintenance costs have been reduced by the use of this oil, as it is keeping the rings and valves free. Our oil consumption has been greatly reduced and there has been a noticeable increase in horsepower.

We are 100% for the Quaker State HD oil and heartily recommend its use to all fleet operators who are interested in getting the most out of their equipment.

Very truly yours,

Ray C. Paul

BIG ENOUGH TO SERVE YOU · SMAL… TO KNOW YOU

This letter's every line and phrase Tells why the use of Quaker State HD pays!

Pledged U.S. TRUCK CONSERVATION CORPS

QUAKER STATE
HD
OIL

Brake Spring Pliers

HERE is New Britain's version of a most widely used type of brake spring pliers. It will handle most of the braking systems on the market,

including Ford brakes and many others.

The pliers are equipped with notched ends, to handle certain types of adjustments, as well as setting brake springs and pulling cotter-pins.

It is designated as No. P-60 and measures 14 inches long; finished in cadmium plating. . . . For more details address New Britain Machine Co., New Britain, Conn. . . . Mention of FLEET OWNER always helps.

•

Filter Elements Save Metal

CERTAIN oil filter elements are enclosed in metal containers, and this metal must be sacrificed each time the element is replaced. The makers of "Wix" filter elements are now offering a replacement element for these, that does *not* use metal covers.

In other words, they have developed a simple and inexpensive method of adapting "Wix" elements to use in certain models of filters, and thus save much steel that would ordinarily be discarded.

A folder illustrates and describes just what work is necessary to adapt your filters to the new metal-saving cartridges. For a free copy write to Jack Wicks, c/o Accessories Corporation, Gastonia, N. C., mentioning FLEET OWNER if you don't mind.

•

Bear Jiffy Tire Spreader

A NEW product to aid in the rapid inspection of tire casings under the OPA program, is offered in the Bear Jiffy Tire Spreader, by the Bear Manufacturing Company, of Rock Island, Illinois.

The new spreader can be used on the floor, curb or bench, thus eliminating the hoisting of heavy tires. The tire is rolled onto the spreader, grips are adjusted to the tire bead and the casing is then spread. Spreading

mechanism is equipped with a self-locking device. The spreader is made in two models, one for passenger-cars and the other for trucks and buses.

For complete details, prices, etc., address Bear Manufacturing Co., Rock Island, Ill. . . . You'll mention FLEET OWNER, won't you?

•

New Fruehauf Calendar

A NEW double-duty calendar for 1943 is offered free by Fruehauf Trailer Company, made doubly useful because of the first-aid features which it contains. It is printed in full color.

The calendar features a first-aid chart, headed by ten simple rules to be followed in case of a serious acci-

dent of any kind. Supplementing the chart are more detailed, illustrated instructions regarding first-aid care of wounds, burns, fractures and shock.

Because of the shortage of civilian physicians and the need for public familiarity with first-aid procedure, the new calendar is a definite contribution to the public welfare.

For your free copy address Fruehauf Trailer Company, Detroit, Mich., mentioning this announcement in FLEET OWNER, if you please.

•

Handbook on Army Motors

A PRACTICAL little shop handbook bearing the title "*Preventive Maintenance Manual*" is published by The Infantry Journal, Washington, D. C.

Its 88 pages contain approximately 60 well-illustrated maintenance hints, explanations and suggestions, designed to help the thousands of officers and enlisted men in U. S. Army motor transport keep Uncle Sam's military vehicles rolling.

While the title is somewhat of a misnomer, since the volume does *not* contain any special reference to preventive maintenance or preventive maintenance schedules, yet the booklet should prove valuable to those already in or about to join the Armed Forces.

If you feel that sooner or later you will be wearing Uncle Sam's uniform, and that you will finally wind up in Army motor vehicle maintenance—which is where you *should* go, perhaps you will find this booklet well worth $1.50, which is the price asked.

Orders should be sent directly to The Infantry Journal, 1115 17th St., N.W., Washington, D. C.

•

New Fire-Extinguisher

A NEW fire-extinguishing unit manufactured of materials not essential to the war effort, and approved by the Underwriters' Laboratories, Inc., has been developed by the duGas Engineering Corporation, Marinette, Wisconsin. It is said to be approved under a war emergency specification and accepted by the Interstate Commerce Commission for the protection of trucks.

The new fire-extinguisher uses the same dry powder that is used with standard metal duGas extinguishers, but instead of being expelled from the extinguisher under pressure, it is applied manually from a fibreboard tube, the tube containing 7 pounds of this specially-treated, free-flowing, water-repellant compound. The unit consists of two of these 7-pound tubes in a wooden bracket.

The dry powder is said to be approved for use on fires in gasoline, alcohol, oils, and other flammable liquids, and because it is electrically non-conductive, it is also said to be approved for use in electrical equipment. It may also be used to control small fires in ordinary combustibles such as wood, paper, and cloth.

The development of this new extinguishing unit to avoid the use of critical materials provides easily-obtainable protection for trucks of all types. For the operator who cannot buy approved metal extinguishers be-

cause of low priorities, it furnishes a means of obtaining protection of equipment. For the operator with high priorities but who needs fire extinguishing equipment while waiting for delivery of metal extinguishers, the duGas war emergency extinguishing unit offers inexpensive temporary protection.

Please write to du Gas Engineering Corp., Marinette, Wis., for further details and mention FLEET OWNER, if you don't mind.

This FACE-LIFTING JOB *Triples* VALVE LIFE

Stoody "6" Hard-Facing Alloy Applied by Welding Renews Worn Valves

Exhaust valves reclaimed with Stoody "6," a cobalt-chromium-tungsten alloy, operate as much as four times longer than new valves! Welding this non-ferrous hard-facing alloy to the valve face is extremely simple and requires only a minute or two if performed on a suitable slow-speed motor-driven jig, as illustrated. Cost of the application is roughly one-third of that of a new valve. Stoody "6" is highly resistant to wear and impact and will not oxidize.

STOODY COMPANY, 1133 W. SLAUSON, WHITTIER. CALIF.

If you are having trouble getting new valves or if you want longer service than can be obtained from ordinary valves try Stoody "6." A Stoody folder titled "RECLAIMING WORN EXHAUST VALVES WITH STOODY "6" gives complete instructions and will be sent free of charge. Write for your copy today.

STOODY COMPANY *Hard Facing Alloys*

Motor-Scooters Help War Work

PRACTICALLY all of Cushman Motor Works' production of "Auto-Glides", shown here, is now absorbed by government agencies and industrial war plants.

The motor-scooters are used in aircraft plants, for example, sometimes in fleets of from fifty to two hundred,

for use by maintenance men, foremen, messengers, etc., in inter-department travel.

One factory, for example, has placed a refrigeration box on some of them, and is using these to transport cold rivets to the assembly lines. Another one has equipped these vehicles with seats in front, to haul two or three persons around the plant at one time.

The Auto-Glide, of course, is extremely economical in operation, being powered with a small, air-cooled, high-speed engine. This information is furnished through the courtesy of Laminated Shim Company, Glenbrook, Conn., which points to its product (shims) as used in the connecting-rod bearings of this little engine.

•

Improved AC Welding Machine

A NEW AC transformer-type welding machine is announced by Wilson Welder and Metals Co., Inc., 60 East 42nd Street, New York, N. Y. . . . A feature of the new Wilson "Bumble Bee" AC welder is its low open-circuit voltage of 42 volts, automatically maintained.

Two primary coils are used instead of one, with a magnetic contactor in the circuit of one primary. Each primary contributes approximately 42 volts to the total open-circuit voltage, which is actually 84 to 85 volts. However, when the machine is idle, one primary is automatically cut out, restricting the open-circuit value to 42 volts. As soon as the electrode contacts the work, the second primary is thrown into the circuit, and if there were not a dead short, the voltage would be 84-85 volts.

When the operator draws an arc, this open circuit potential of 84-85 volts enables him to establish his arc quickly and begin welding. Most welding operations are performed at between 32 and 40 volts. When welding is completed and the operator pulls out or lengthens his arc, the arc voltage rises. The moment it reaches 45 volts, the contactor opens and cuts out one primary, leaving only 42 volts in the open circuit.

Other improvements incorporated in the new welder include: Power factor correction, provided with built-in capacitors on all four sizes—300, 500, 750, and 1000 amperes—resulting in a power factor of 100% to 86% (lagging) over the popular working range. With a new wiring arrangement, capacitors are cut out when the machine is idle, thereby conserving power and reducing costs.

The new welder is portable and streamlined, and its 18" width permits easy passage through narrow doors. It has dual voltage connections for either 220 or 440 volts and thermal overload protection, provided by a cut out coil buried in the winding. A single hand-wheel control gives an infinite number of current adjustments throughout the NEMA range.

•

New V-Belts Use Wire

JULIA GEIG of Akron, Ohio, has no connection with the U. S. Army nor the sturdy, bullet-spitting tanks which soldiers use—but the V-Belt she's holding does!

The belt is a wire-carcass type, developed recently by the Goodyear Tire & Rubber Company in lieu of fabric or cord-construction belts which are said to break down more easily under excessive heat and lack of proper engine ventilation in the heavily-armored tanks.

With the endless steel cords, said P. W. Litchfield, Goodyear board

chairman, such belts have delivered many times longer service than conventional cotton cord belts. They're appearing also in war industries where greater strength and lower stretch are helping speed the flow of military equipment, according to Mr. Litchfield.

•

New Bulletin on Welding

A NEW bulletin entitled "C-F Positioners" gives data that promises faster, better and more economical welding. . . . This s a well illustrated and informative bulletin that describes a new practice of welding on positioners. . . . It is known as Bulletin WP 22, is recently off the press and will be sent without charge to anyone interested. . . . Its 16 pages show typical welding jobs with descriptions of position welding methods. . . . Write to Cullen-Friestedt Company, Chicago, Ill., for free copy.

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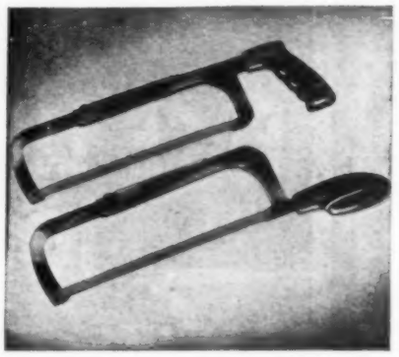
Victor Hack-Saw Frame



A NEW type of hack-saw frame is announced by Victor Saw Works, Middletown, N. Y., in which all loose blade studs and threaded tension devices have been eliminated.

The blades are released or set up by a simple, cam-action, lever-lock device, in a fraction of the time required when the conventional type of frame is used.

Made of heat-treated spring steel, this new hack-saw frame is said to be extremely rigid, resulting in straighter cuts and fewer broken blades. Its gun-metal finish affords high resistance to rust, perspiration and various forms of corrosion.

The frame is available with either pistol-grip or straight handle. Both handles are of patented design, molded of heat-resistant Tenite plastic—a non-conductor of electricity. The blade can be positioned to face in any of four directions. Adjustment is for 8", 10", or 12" blades. There are no loose parts to fall off, and the frame will not "jack-knife" with the blade removed.

•

Data on Fire Extinguishers

THE maintenance of fire extinguishers, which are credited with stopping 70% of all fires, is especially important when wartime production, ertical materials, plants and manpower are at stake.

Many businesses, institutions and civilians will be unable to get new extinguishers of approved types for the duration and consequently must keep their present equipment in good operating condition. Fortunately, recharging materials are still available.

To assist in proper maintenance, a new folder entitled "*Directions for Inspecting, Recharging and Maintaining Portable Fire Extinguishers*" may be obtained upon request to the Pyrene Manufacturing Company, Newark, N. J. . . . Mention of FLEET OWNER will be appreciated.

Do the spark plugs in your fleet look like these?

*Special Offer "PLUG-CHEK" INDICATOR AND DATA BOOK

AUTO-LITE
PLUG-CHEK
DATA BOOK
To help you improve the performance of your fleet and save vital gasoline, Auto-Lite offers you the new "Plug-Chek" Indicator and Data Book. Let your Maintenance Man see for himself why mechanics coast to coast call "Plug-Chek" the most valuable service tool ever offered the industry. Write today.

YOUR spark plugs can play an important part in helping you in your patriotic efforts to get "top" efficiency from every bus in your fleet. *"Plug-Chek" Inspection Service can give Maintenance Men "inside facts" about spark plug performance . . . can help point the way to improved engine operation and the saving of vital gasoline. To assist you in getting these results, Auto-Lite now offers to supply your organization with "Plug-Chek" Indicators and Data Books. There is no obligation, just write on your letterhead to

THE ELECTRIC AUTO-LITE COMPANY
TOLEDO, OHIO *Merchandising Division* SARNIA, ONTARIO

AUTO-LITE SPARK PLUGS

IGNITION ENGINEERED BY IGNITION ENGINEERS

IN ITS 26 GREAT MANUFACTURING DIVISIONS, AUTO-LITE IS PRODUCING A LONG LIST OF ITEMS FOR AMERICA'S ARMED FORCES ON LAND, SEA AND IN THE AIR

Light-Weight Air Drill

A NEW light-weight pneumatic drill, manufactured by Ingersoll-Rand Company, is finding wide application on the production lines of our

war plants, particularly those making aircraft.

Identified as the Size 00A Drill, it weighs less than two pounds. Powered by an efficient "Multi-Vane" air motor, it is studily constructed for three-shift endurance. A built-in speed regulator can be set for desired performance, and split-second throttle action permits quick, accurate hole-starting. Lubrication is provided by a built-in automatic oiler.

Because of its light weight and "fit-the-hand" pistol-grip, the drill can be used hour after hour without fatigue, it is claimed; for this reason it has proved an ideal tool for women operators. A chuck shield offers protection, and also enables the operator to guide the drill more effectively by grapsing the shield with the fingers of his free hand.

Further details will be furnished by Ingersoll-Rand Company, 11 Broadway, New York, N. Y. . . .Mention of FLEET OWNER always helps.

•

Free "P. M." and Lube Charts

A SERIES of truck lubrication and preventive maintenance charts prepared by Sinclair Refining Company to promote cooperation with ODT requirements are available without cost to truck operators.

These charts, according to Sinclair, can be of great utility not only to fleet operators but also to operators of one or a few trucks. Used correctly, Sinclair says, they offer great possibilities for maximum service from automotive equipment.

The Lubrication Charts are diagramatic, with all lubrication points clearly indicated and both the correct type of lubricant and correct lubrication period specified. Detailed lubrication recommendations and truck manufacturer's instructions are included. Information is also given about engine, transmission, rear axle, cooling system, and gasoline tank capacities; also about tire sizes and correct pressures.

These charts are printed in two colors on substantial card stock, and perforated so that they can be hung up for convenient reference. They cover popular makes and models of trucks.

For vehicles which cannot be taken care of by this type of chart, Sinclair has prepared special chart forms upon which they will furnish personalized recommendations to meet an operator's lubrication requirements for any type of truck, commercial vehicle, or bus. These personalized charts are also furnished without charge.

The new charts enable operators to maintain a check-up on needed lubrication and the servicing given to every truck. They show the attention needed daily, and the lubrication servicing required at periods of 1,000, 5,000 and 10,000 miles respectively, with columns in which the servicing check-up can be recorded.

This type of chart is arranged so that one can be given by an operator to each of his drivers, and the driver's signature obtained to a pledge on the chart that he will have the required servicing done regularly, to promote truck conservation in behalf of the national war effort.

For free sample copies of these new charts, address Sinclair Refining Company, 630 Fifth Ave., New York, N. Y. . . . Mention of FLEET OWNER always speeds up the service.

•

Lubricant for Lathe-Centers

A NEW lubricant for the dead-centers of lathes has been developed by Joseph Dixon Crucible Company, Jersey City, N. J.

The product is a combination of pure flake lubricating graphite and other specially-formulated ingredients, made to withstand the extremely high pressures and temperatures developed at the dead-center in lathe work.

Two-year tests on all types of lathes and work have demonstrated that it effectively controls overheating and

protects dead-centers against scoring and softening, reducing wear of the dead-center and also reducing spoilage of work, according to the makers.

This new Dixon product also has many uses as an anti-seize compound, where a lubricant of extreme film-strength is required. It is being sold through mill, factory and hardware supply houses in 1, 4 and 8-ounce collapsible tubes.

All-Spray Water Nozzle

TO MEET the demands for a variable, all-spray nozzle, without a straight stream, a new water spray nozzle, the "Alfco-Spray," has been

introduced, according to the manufacturer, American-LaFrance-Foamite Corporation, Elmira, N. Y.

From the shut-off position, a slight turn of the tip immediately gives a cone spray of 40 degrees. Further slight rotation produces increasing cones up to full curtain of 150 degrees, with reversal back to shut-off without any intervening straight stream.

This model prevents any possibility of a solid water stream being applied inadvertently on live electric circuits. The varying cones are also excellent for extinguishment of heavy oil fires, and for general cooling purposes, it is claimed.

Because of the volume of water this new nozzle can handle, and the wide area covered by its spray, it offers excellent protection against possibility of spreading fires as a result of incendiary bomb attacks, especially in industrial plants where large areas can be thoroughly wet down quickly.

•

All-Ceramic Airplane Plug

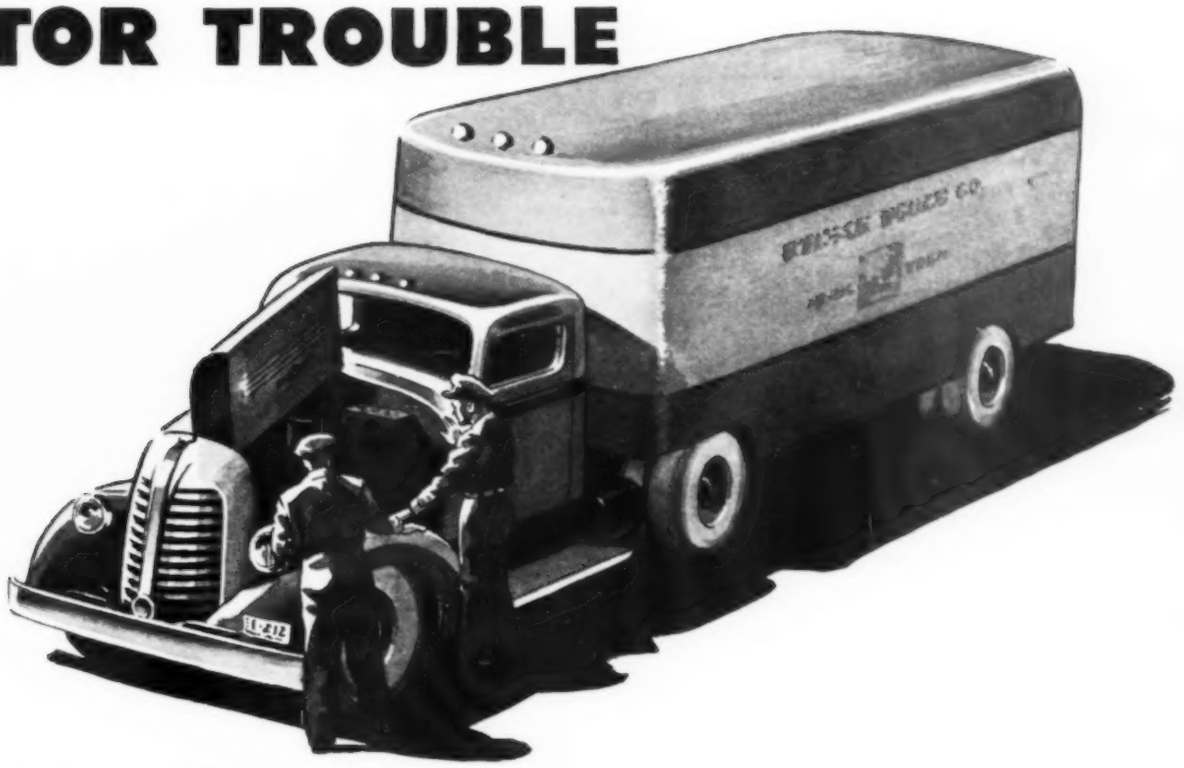
AN all-ceramic insulated spark plug meeting the exacting requirements of high-output aviation engines is announced by Champion Spark Plug Company following exhaustive tests participated in by various government agencies and aircraft engine manufacturers.

The importance of the announcement is highlighted by the dwindling supply of mica upon which the United Nations can draw.

The ceramic plug, too, is said to have none of the inherent weaknesses of mica insulated plugs which have been acutely apparent under the high temperature and pressures of the latest high output engines.

Such spark plugs, until now, were said to be a definite limitation to the efficiency and range of military aircraft, often breaking down after a few hours. It is believed Champion's new ceramic plugs have effectively broken this bottleneck.

MOTOR TROUBLE



that might have been

PREVENTED ... with FRAM

Maybe *you* have been putting up with *unnecessary* motor trouble ... going crazy with red tape trying to replace worn out parts that Frams could have saved. Hundreds of fleet owners have already *proved,* by actual trial, that Frams cut maintenance troubles, save hard-to-get parts. "Wear found to be 3 and 4 times more on engines *not* equipped with Frams," writes a West Coast operator. "200,000 miles before reboring," reports a transportation company. "Frams cut engine wear in half," a bus operator writes.

So take a tip from the experience of other fleet owners. If your fleet has *no* filters, install Frams. Fram Oil & Motor Cleaners have patented, *chemically-treated* cartridges that filter out dust and abrasives and also impede formation of acids and other harmful corrosives that eat away motor parts.

If your fleet HAS filters, check and be sure they are adequate for today's operating conditions. Step up performance by equipping with genuine, *chemically-treated* Fram Replacement Cartridges, now made to fit most makes and types of filters. Fram Corporation, Providence, R. I. Canadian Distributor: J. C. Adams Co., Ltd., Toronto, Ont.

FRAM'S GUARANTEE

Put FRAM Oil & Motor Cleaners on your fleet. Operate on regular schedule for 90 days. Then, if you are not convinced that FRAMS save many times their small cost, we will gladly refund your money.

HOW'S YOUR OIL FILTER?

The Dip-Stick Tells The Story

Improved AC Welding Machine

A NEW AC transformer-type welding machine is announced by Wilson Welder and Metals Co., Inc., 60 East 42nd Street, New York, N. Y. . . . A feature of the new Wilson

"Bumble Bee" AC welder is its low open-circuit voltage of 42 volts, automatically maintained.

Two primary coils are used instead of one, with a magnetic contactor in the circuit of one primary. Each primary contributes approximately 42 volts to the total open-circuit voltage, which is actually 84 to 85 volts. However, when the machine is idle, one primary is automatically cut out, restricting the open-circuit value to 42 volts. As soon as the electrode contacts the work, the second primary is thrown into the circuit, and if there were not a dead short, the voltage would be 84-85 volts.

When the operator draws an arc, this open circuit potential of 84-85 volts enables him to establish his arc quickly and begin welding. Most welding operations are performed at between 32 and 40 volts. When welding is completed and the operator pulls out or lengthens his arc, the arc voltage rises. The moment it reaches 45 volts, the contactor opens and cuts out one primary, leaving only 42 volts in the open circuit.

Other improvements incorporated in the new welder include: Power factor correction, provided with built-in capacitors on all four sizes—300, 500, 750, and 1000 amperes—resulting in a power factor of 100% to 86% (lagging) over the popular working range. With a new wiring arrangement, capacitors are cut out when the machine is idle, thereby conserving power and reducing costs.

The new welder is portable and streamlined, and its 18" width permits easy passage through narrow doors. It has dual voltage connections for either 220 or 440 volts and thermal overload protection, provided by a cut-out coil buried in the winding. A single hand-wheel control gives an infinite number of current adjustments throughout the NEMA range.

•

Measures Ignition Voltages

A NEW electronic crest voltmeter announced by the General Electric Company is designed to measure ignition voltages of internal combustion engines; surge voltages caused by corona and surface discharges in the insulation on such electric equipment as motors, generators, and cables; and other repeated-impulse voltages up to 30,000 volts.

The instrument, weighing only 23 pounds, fills the need for a portable crest voltmeter for both laboratory and production testing. It is suitable for field measurement, such as trouble shooting and the determination of actual operating conditions, and can also be used for testing aircraft engines in flight.

The voltmeter can be used in areas where no electric power is available, since it has a self-contained battery power supply.

•

Pump Tank Extinguishers

IN CONFORMANCE with the emergency requirements of the United States Government, the American-La France-Foamite Corporation have de-

signed a new pump tank with the amount of critical materials in its manufacture reduced to a minimum.

This new pump tank produces a straight stream and not a spray. This is in compliance with the latest requirement of the Office of Civilian Defense for controlling magnesium type incendiaries.

The new pump tank is made in 5-gal. and 2½-gal. sizes. It has an over-sized air chamber assuring minimum pulsation, a steady pressure and a more constant stream. It has a range of 30 to 40 feet. It is a self-contained unit and can be readily transported up ladders, over roofs and to points difficult of access.

It is equipped with a standard 26" hose and its interior has a corrosion-resisting coating. The outside finish is of red enamel also designed to repel corrosion and to make its identity immediate.

Both sizes are approved by the Underwriters' Laboratories with a Class A-1 rating, under the Emergency Alternate Specifications.

Resin-Oil Emulsion Paints

ONE of the most interesting developments in paint manufacturing practice in recent years is the new interior resin-oil emulsion paint. Paints which can be thinned with water have gone through several stages of development.

Beginning with the familiar calcimines, the next step resulted in the very popular casein and other protein binder paints. Then came emulsified resin paints. The most recent advance involves the emulsification of oil and resin in the paint manufacturer's plant instead of his buying an already emulsified resin.

In paints of this type the pigment is suspended in an emulsion that consists of minute oil, resin or varnish particles dispersed in a water medium. When the paint is brushed on a surface, the water begins to evaporate and the particles of organic binder begin to coalesce to form a continuous film, with the pigment particles dispersed in this film. The film develops an adhesion to the surface to which it is applied. Finally, the film begins to dry or oxidize in a manner quite similar to the actual drying process of quick drying finishes.

Advantages of resin-oil emulsion paints as listed by those manufacturers promoting these paints on a broad scale are—in addition to the fast drying factor—ease of application, washability and adaptability on many types of surfaces. These include wallpaper, painted walls, wallboard, plaster, cement, and brick interiors.

•

Book on How to Oil Lathes

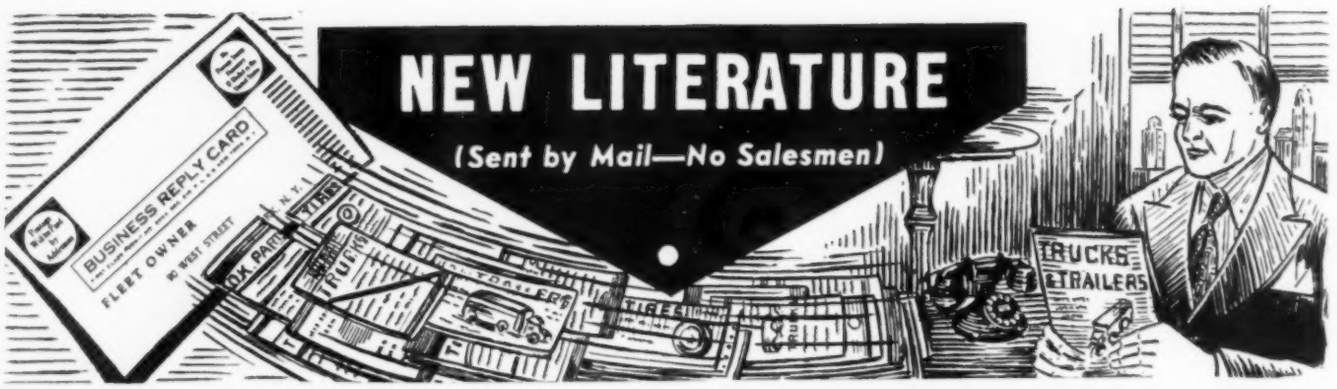
THE SECOND of a series of Lathe Service Bulletins issued in the interest of more efficient war production has been published by the South Bend Lathe Works.

"Oiling the Lathe" strongly emphasizes the importance of proper lathe lubrication in maintaining maximum performance and accuracy. It outlines a regular procedure of oiling with proper lubricants at definite intervals.

This 19-page bulletin will be helpful to the operator of any size engine lathe, regardless of make. Copies of

Bulletin H2, "Oiling the Lathe," can be obtained free of charge from the South Bend Lathe Works, South Bend, Ind.

THE
NATION'S NIGHTMARE:
Manpower
Rising like an ogre from the bottle of some evil conjurer comes the problem of man-power to plague a nation of one-hundred-thirty millions. It is, unfortunately, fact . . . not fiction. Washington talks of an Army of ten millions, with civilian counterparts in direct ratio.
It staggers the imagination, poses a problem. What can be done about it?
Grey-Rock does not pretend to provide men to plug the gaps in industry and industry's conveyor-belt, transportation. But it does insist that its products can save man-hours, the mathematical equivalent of man-power.
In the vital category of inspecting, adjusting, and relining brakes and clutches, Grey-Rock saves time, extends the useful life of materials, and that of irreplaceable vehicles themselves. For Grey-Rock friction-materials are so unquestionably right as product, so definitely dependable as method, through the 3-point-plan which embraces National Safety Council standards.
Count on Grey-Rock in these tremendous times. Consult your Grey-Rock jobber. UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.
ESSENTIAL PRODUCTS FOR
ESSENTIAL TRANSPORTATION
Grey-Rock
BALANCED BRAKSETS • BLOCKS
CLUTCH FACINGS • FAN BELTS • HOSE
UNIVERSAL SAFETY



177. New Manual on Servicing Transmissions & Rear Axles

Something special is this big, new 196-page manual entitled *"Here's How to Service Transmissions and Rear Axles"*. . . . It provides step-by-step information, profusely illustrated, and is easy to read and follow, covering all makes and models of cars and many makes of trucks from 1935 to 1942.... To give you an idea of the vastness of this manual, it took the combined cooperation (and funds) of four gear manufacturers to bring it out. . . . There is a price of $2.00 on the cover, but we think that we can obtain *free* copies for honestly-interested fleet men. . . . Just jot down Number 177 on our post-card and leave the rest to us; we'll try our best, believe us, and you won't be asked to buy anything, now or any time.

•

178. A Tire Record Card for Each Vehicle—They're Free!

Here's a good way to prove to ODT and OPA that you really *check* tires. . . . It's a Tire Record Card that provides space for noting the tire pressures each time your tires are checked, together with the date and exact location of each tire. . . . There's room for as many as 12 tires per vehicle and plenty of space for duals. . . . If you'd like a supply of these cards, printed on good tag stock, you're entitled to one for each vehicle you operate—absolutely free; there are *plenty* available. . . . Just put No. 178 on our post-card and state how many cards you want.

•

179. Salvaging Exhaust Valves by Applying Hard-Facing

If you are troubled by the parts shortage and exhaust valves are on your "wanted" list, you really should look into the possibility of reclaiming your old, burned ones. . . . A brand-new folder entitled *"Reclaiming Worn Exhaust Valves with Hard-Facing"* is just off the press. It gives complete instructions and will be sent to you free of charge. . . . In addition to making them like new, it is said that hard-facing makes exhaust valves wear 4 times longer than new valves. . . . Number 179 on our post-card brings a copy of this folder promptly.

180. Wartime Service Manual Covers Generator Armatures

When a generator goes bad, can you tell instantly whether it's due to a burned-out armature, a grounded armature, a short circuit or an open circuit? . . . Do you know the many ways in which a growler should be used? . . . These are but a few of the things you will find in this new *"Wartime Service Handbook"* on automotive electrical units of various types. . . . Since it's most important *not* to replace generator and starting-motor armatures, until you are sure they *can't* be fixed—and since it's proving most difficult to obtain *new* armatures—this book should be a natural. . . . You can use it to break-in new mechanics, too. . . . Number 180 on our post-card and you'll get one by mail, without obligation.

•

181. How to Weld and Braze Things Made of Aluminum

Somewhere in your reclaim and salvage work, you'll run across an aluminum part that got broken. Don't *wonder* how you can best go about welding or brazing it. . . . Here is a practical handbook, designed to meet the needs of the welder who is working with aluminum alloys. . . . It describes in detail the practices now widely employed for joining aluminum parts by gas welding, arc and resistance welding, and by brazing. . . . Mention No. 181 on our post-card and a free copy will be mailed promptly.

•

182. New Handbook Explains Steam-Detergent Cleaning

Several case-histories telling how a number of fleet operators are actually making use of steam-detergent cleaning, to speed up maintenance work on trucks, trailers and buses, are featured in a new 24-page Cleaning Handbook. . . . In addition, the booklet tells all about recently-improved steam guns, which are operated without pumps motors, injectors or other auxiliary equipment. . . . If you'd like to learn something *new* about steam cleaning chasses, motors, bodies, etc., this is your opportunity. . . . No. 182 on our postcard will insure your getting a *free* copy.

183. Helps You to "Visualize" Truck Color Combinations

If you had been thinking of changing the color-scheme of your vehicles—even in these days of shortages—and wondered just how that brown-and-cream, green-and-yellow, red-and-blue (or any other combination) might look, you can stop wondering, right here. . . . That is, *after* you get your copy of the free *"Color Visualizer"* offered in this paragraph. . . . It's a book of actual color cards, split in the center and bound in a spiral binder, so that you can line up any two different colors, horizontally. . . . In the binding are transparent, skeleton drawings of a van truck, panel truck, tractor-trailer and a bus, with a beltline in the middle of each. . . . Just pick out your two colors, lay the skeleton over them and see how your vehicle is going to look painted in that combination. . . . Number 183.

•

184. Free Folio of Forms Designed for For-Hire Fleets

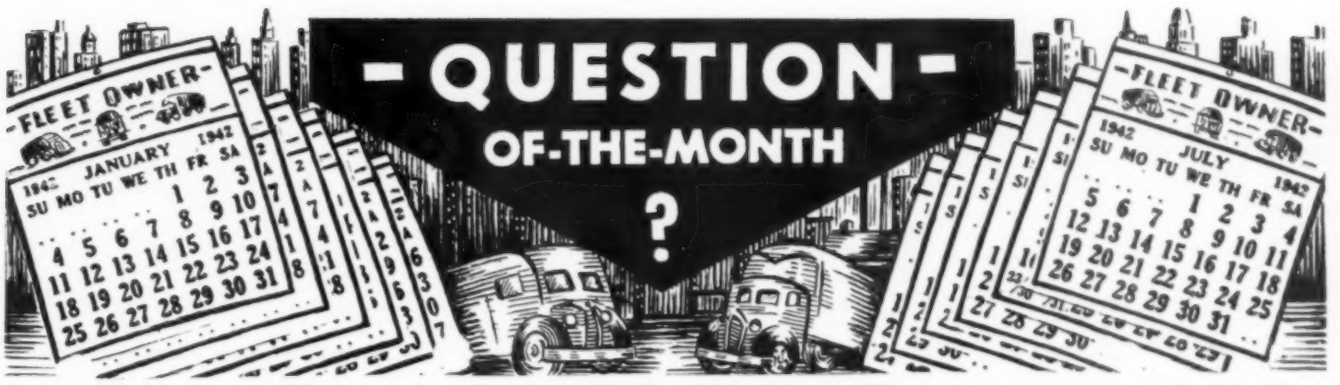
Here is a complete assortment of sample printed forms of the kind generally used by for-hire carriers. . . . These are printed in full size, on regular stock, and include standard claim forms, records, manifests, truck lease contracts, social security forms, driver's trip and other records, bills of lading, ICC forms, ODT record forms, etc. . . . Attached to each form is a printed explanation of how to use it, and how much 500 or 1,000 copies (or smaller quantities) will set you back. . . . The firm issuing this sample folio reasons that the best way to *sell* you, is to send you the samples. . . . Number 184 on the post-card brings a complete set *by mail*.

•

185. "Copper Nerves" is Title of a New Re-Wiring Manual

This is a little reference book on automotive electrical service, packed with illustrations, diagrams and tables, arranged and indexed for easy use. . . . This compact handbook covers all important points in the starting, lighting, ignition and accessory circuits of modern cars, trucks and buses. . . . It gives a complete "picture" of how electrical systems operate, how to locate trouble by a fast and accurate checking procedure, and how to make proper repairs and replacements. . . . Just the thing for new mechanics (and old ones, too), this manual is *free*. . . . Number 185 on our card brings a copy by mail.

FREE SHOP BOOKLETS TO HELP KEEP 'EM ROLLING!



LET'S TRY *to* HELP SOLVE *the* LABOR PROBLEM

THE MANPOWER situation is quite critical, as we all have found out by this time. Everyone seems to be making "surveys" on the subject; little has been done to help. It is true, the employment of women has been suggested; also the use of people who are partially physically handicapped.

Since the labor shortage seems to be a pressing fleet problem, we are making an attempt to seek a solution, depending (as usual) on actual experience, rather than a lot of high-sounding theory.

Perhaps we shall be able to gather some good ideas that have not been thought of before? At least, we are doing *our* duty by starting the ball a-rolling. Won't you do *yours*, by reporting your current experiences in the labor situation? . . . Your prompt action is *urgently* requested. . . . Thanks.—*Editor.*

(Please tear out and mail to The Editor, Fleet Owner, 90 West St., New York, N. Y.)

Question No. 135—Labor Shortage (Maintenance Only)

Do you feel the current manpower shortage in the *maintenance* of your fleet? ☐Yes; ☐No.

If so, what types of labor do you now have difficulty in securing? *(Please check below)*

☐Drivers & Helpers ☐Vehicle Washers ☐Parts Clerks
☐General Mechanics ☐Body Repairmen ☐Record Keepers
☐Mechanics' Helpers ☐Body Painters Others? .....
☐Vehicle Greasers ☐Auto Electricians .....

To what condition do you principally attribute your shortage of help?

☐Men leaving to join the Armed Forces. Other reasons? .....
☐Men leaving for jobs in war industries. .....
☐Expansion, requiring hiring additional help. .....

Have you ever employed *women* for any of the jobs listed above? ☐Yes; ☐No.

If so, for which jobs have you used (or are you using) women? .....

What has your experience been with women in such jobs? ☐Satisfactory; ☐Unsatisfactory.

If unsatisfactory, please explain .....

.....

How long, on the average, has it taken you to train women for any of the above jobs? .....*Months*

Have you been successful in employing extremely *young*, or extremely *old* men? ☐Yes ☐No.

If so, how young?.....*Years*; How old are the elderly employees?.....*Years*

What fleet maintenance personnel are you now *in need* of, and how many of each. *(Please list)*.....

.....

Please let us have any suggestions that you think might help solve this problem .....

.....

.....

.....

How many vehicles in your fleet? *(Please indicate below)*

Trucks..... Tractors..... Trailers..... Pass. Cars..... Buses..... Miscellaneous.....

Mail THIS COUPON FOR FREE SURVEY

Name of Firm.....

Address .....

City and State.....

Your Name .....*Position*.....

Production of Heavy Trucks Cut

THE number of heavy trucks that may be manufactured for civilian use within the period of August 1, 1942 to March 31, 1943, was recently cut from 4,000 to 3,580 by WPB. . . . It said that some manufacturers are unable to produce the number of trucks originally assigned to them, due to the demand for their facilities in direct war goods production.

•

Predicts Further Truck Curtailment

JOHN ROGERS, ODT's Director of Motor Transport, recently indicated that further restrictions on truck use may be considered by ODT. . . . He told Senator Maloney's Oil Investigation Committee that gasoline and rubber are the most critical materials, but more troubles are due because of scarcity of repair parts and mechanics.

•

Alldredge New ICC Chairman

THE ICC has elected J. Haden Alldredge as its Chairman for 1943. . . . Commissioner John L. Rogers, who by seniority in service was next in line for election as chairman, was unable to undertake the added duties of Chairmanship, since he is serving as Director of ODT's Division of Motor Transport.

•

White Outlines 1943 Conservation Plan

THE White Motor Company, Cleveland, Ohio, has planned an intensive service program for 1943. . . . Last year White converted its entire sales force into an army of trained service men whose mission it was to spread the gospel of conservation maintenance under war conditions. . . . The 1943 program, outlined at recent nationwide meetings, is said to be even more intensive, to meet still greater needs.

•

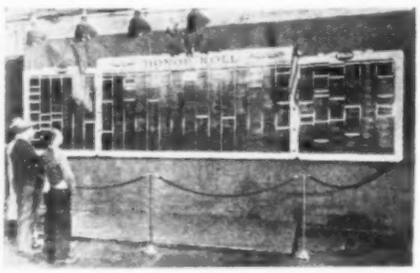
International Promotes Moulder

P. V. MOULDER, who has been assistant domestic sales manager in charge of motor trucks for International Harvester, has recently been appointed assistant to the second vice-president, J. L. McCaffey. . . . W. C. Schumacher, formerly manager, western district, has now been placed in charge of motor truck sales, to take over Mr. Moulder's former duties.

Englander, Trailmobile Head, Passes

THE Trailer Company of America, Cincinnati, Ohio, announces with regret the passing of Joseph Englander, chairman of its board of directors, who died on January 16th after an illness of several months. . . . Mr. Englander has been with Trailmobile since 1928 and was also president of the Highland Body Company. Before joining Trailmobile, he was with Lapeer since 1922, and prior to that was associated with Columbia Terminals Company, St. Louis, Mo. . . . David Calhoun, Jr., Trailmobile president, has been actively heading the company for the past year.

•



WHITE Motor boasts this "Honor Roll".... It lists the names of over 700 White personnel now in the military services. . . . It's located in the main corridor of the Cleveland plant, where all may view it.

•

Truck Crisis on West Coast?

THE West Coast regional manager of the ODT recently reported a "grave crisis" in Pacific Coast commercial trucking, caused by a shortage of tires, manpower and spare parts. . . . He reported that truck breakdowns are already nearing the critical stage and were increasing at an alarming rate. . . . "Trucks on the Pacific Coast are used to transport practically all of our foodstuffs and much of the materials that are being used in war plants," he said.

•

250,000 More Trailers to Be Built

PRODUCTION of more than 250,000 trailers, including sizes from the smallest to the largest, is called for in the tentative 1943 program for *military* pneumatic-tired trailers. . . . The Truck Trailer Advisory Committee was informed of this quota, at a recent meeting held with officials of WPB. . . . The actual number to be built is still under study, however.

John Turney Resigns from ODT

DIRECTOR Eastman of ODT recently announced the resignation of John R. Turney, Director of ODT's Division of Transport Conservation. . . . In making the announcement, Mr. Eastman revealed the conversion of the Division of Transport Conservation into the "Division of Review and Special Studies". . . . Charles L. Dearing heads the new division, with H. J. Drescher as his associate.

•

E. C. Fink, Mack Truck President, Dies

MACK Trucks, Inc., New York, N. Y., announces with deep regret the passing of its president and chairman of the board, E. C. Fink, who died on January 1. . . . A pioneer in the truck industry, Mr. Fink has been an officer of Mack since its organization in 1911, following a consolidation of Mack Brothers, Hewitt Motor Co., and the Sauer Motor Truck Company. . . . He was for many years in charge of production at the company's plants in Allentown, Plainfield and New Brunswick, N. J. . . . He was 62 years old.

•

ACWP Cites Development of Trucks

A FORMAL presentation was made last month to the House Committee on Interstate and Foreign Commerce, entitled *"Report on Commercial Motor Vehicle Improvements, 1921-1942"*. . . . The survey was made by Automotive Council for War Production at the request of the U. S. Board of Investigation and Research and the oral presentation was delivered on January 25th. . . . Among officials participating in the presentation were: I. B. Babcock, president of Yellow Coach; Frank Fageol, president of Twin-Coach; Leslie Allman, vice-president of Fruehauf; George M. Kellogg of International; George W. Malcomson of Dodge; A. Gelpke, chief engineer of Autocar; and Robert F. Black of White Motor Company. . . . The complete report is expected to be available in printed form.

•

Hercules Awarded Army-Navy "E"

HERCULES Motors Corporation, Canton, Ohio, was recently awarded the Army-Navy "E" flag for production excellence. . . . The presentation was made by Col. H. M. Reedall, at the company's main plant in Canton, Ohio.

AMERICA NEEDS YOUR IDLE TOOLS!
Every mechanic in America should know these facts . . . and act on them! The shortage of wrenches and hand tools grows more critical. Our armed forces come first . . . that's a matter of life and death . . . of quicker Victory or final defeat. But it is also desperately important that 25,000,000 civilian trucks, buses, tractors, and cars be kept rolling. That requires more tools than the Tool Industry can immediately furnish . . . And that's where you come in!
SNAP-ON TOOLS CORPORATION, TOOL ENLISTMENT DIVISION
8066 28th Avenue, Kenosha, Wisconsin
MAIL THIS COUPON FOR FULL DETAILS
RICA WINS ON WHEELS . . . KEEP EVERY
TOOL WORKING ★

"OK, Snap-on, America gets MY idle tools!"

"I know how tough the going is for the boys back in the shop. A lot more work . . . fewer men to do it . . . longer hours. New tools? . . . well, try to get 'em! Uncle Sam's needs come first . . . and nobody wants to beef about that. Yet in spite of everything the boys *have got to keep those babies rolling!*

"So OK, Snap-on, count me in. Your offer to appraise my tools at a fair price for a cash deal sounds alright to me. I'm sending in that coupon *now.*"

* * * *

LET'S ALL pitch in and lick this shortage that increasingly handicaps the service industry. The one quick, sure way to do it is to *get every idle tool back to work!*

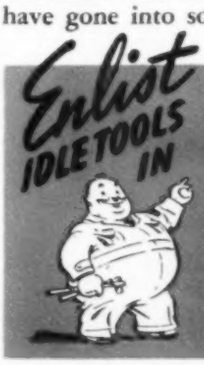
You men who are going into service . . . and you who have gone into some war industry where your tools are not needed . . . get those tools back into the fight . . . *America needs them!*

If you cannot yourself contact a mechanic seeking tools, we'll try our utmost to do the job for you. We organized our Tool Enlistment Division for just that purpose. Talk it over with your Snap-on man — or call at the nearest Snap-on branch office — or write direct to the Tool Enlistment Division. We'll arrange to make a fair cash appraisal of your tools, *and to put them back to work!* Fill in, and mail the coupon today!

TOOL ENLISTMENT DIVISION

SNAP-ON TOOLS CORPORATION

8066-B 28th Avenue **Kenosha, Wisconsin**



Snap-on Tool Enlistment Plan

HELP AMERICA WIN ON WHEELS

Tool Enlistment Division, SNAP-ON TOOLS CORPORATION
8066-B 28th Avenue, Kenosha, Wisconsin

Send me full details of the Snap-on Tool Enlistment Plan.

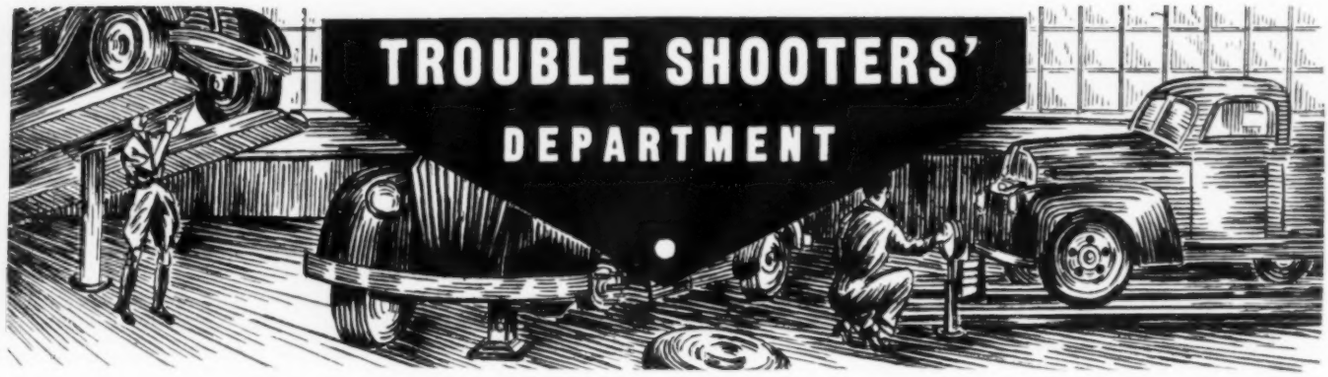
(Check one of these)

☐ I have tools, and am ready to enlist them for Victory, at fair cash prices.

☐ I need tools, and will consider purchasing Victory tools of good quality and condition, at fair prices.

Name.....

Address.....



A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.

TUBELESS TIRE DETAILS

● *To the Editor: We have been reading in the newspapers about a new type of tubeless tire, and are especially interested in the tests which are stated to have been so successful. It appears that a private individual has developed this, according to what the papers say.*

Since none of the major tire companies seem to talk about this idea in their advertisements, we are wondering whether or not there really is anything to it? And why, to date, has no information on this development appeared in this publication, if the thing is any good at all?—D.F., New York, N. Y.

Answer: Yes, it *is* strange that the tire companies have not said much about this. Frankly, that's one reason why you have not seen much on this subject in FLEET OWNER before this. Here, briefly, is the situation thus far:

One type of tubeless tire *has* been mentioned in this publication previously—the one announced by Goodrich. It appears that this particular development is shrouded by great secrecy, perhaps for military reasons, and whatever has been officially released by Goodrich, up to the present, *has* appeared in FLEET OWNER. We refer you to our August, 1942 issue; page 76.

The type of tubeless tire to which you refer as having received much newspaper publicity is *not* a new tire at all, but is simply a method of converting present passenger-car tires, which was developed by John McGay of Tulsa, Okla., who is *not* in the tire business. According to what we have been able to learn, this idea is being tested by leaders in the petroleum and rubber industries; also by Federal and State government officials. There's nothing complicated about it, but we do not have conclusive proof of its complete practicability. This is the way it works:

As shown in the accompanying illustrations the McGay tubeless tire idea can be applied to *any* type of tire that is mounted on a solid rim which will hold air. But the hole in the rim which usually accommodates the tire valve, must be fitted with an all-metal tire valve, to be used as a means of introducing and holding the air. Any standard metal tire valve can be used, with a couple of rubber washers, as shown.

In order to be used this way (minus the tube) the regular tire casing must be perfectly air-tight, and free from holes, breaks, checks, ply separation, etc. A new tire will perhaps work better, but an old tire must be thoroughly checked and any air leaks repaired, in order to render it air-tight. The rim must also be checked and that portion of it which contacts the tire bead should be made absolutely smooth.

Inflation of the tire is then done through the valve mounted in the rim. Care must be taken to have both beads seated on the rim, until sufficient pressure is accumulated within the casing to make them sit tightly and hold the air in. Usually a large volume of air under pressure is needed to "start" the inflation, and it will probably be necessary to temporarily remove the valve-core, until enough air is inserted to bring about the initial seating. They recommend the use of a block or can, as shown in the center illustration, as a standard upon which to set the tire for ease of inflation. When both beads are sitting tightly on the rim, the valve-core is quickly inserted and the tire inflated to its proper pressure. The trick is to get the air in *quickly*, to make the beads seat on the rim.

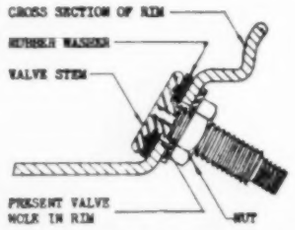
Mr. McGay recommends that where old tires are used in this tubeless conversion, it might be a good idea to use a couple of quarts of any good tire-sealing fluid inside of the tire, to help perfect its sealing qualities, although on new casings it is not deemed necessary to use any sealing compounds.

According to what we have been able to learn, a great number of passenger-cars have had their tires converted in this manner, many of them operated in fleets of oil companies, states and other departments, and that many thousands of miles have been run with little air-loss and rather satisfactory results.

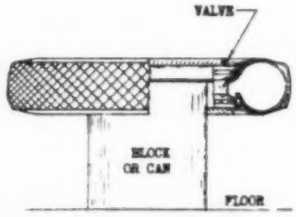
This tubeless tire idea was recently demonstrated before Federal government officials in Washington, as well as before several special Congressional investigating committees, under the sponsorship of the Tulsa (Okla.)

(*Please turn to page* 100)

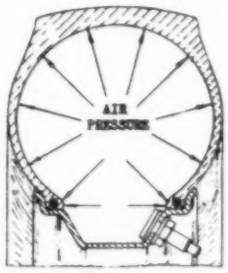
SOME DETAILS OF THE McGAY TUBELESS TIRE IDEA



HOW the hole in the rim is sealed with a metal tire-valve and washers.



TIRE must be mounted on a block or can, to get the air inside quickly.



HERE's a cross-sectional view of tire without tube, mounted on rim.

Don't Overlook This Important Contribution To Fleet Maintenance

In the maintenance departments of large fleets and small, the Packard Certified Re-Wiring Manual, "Copper Nerves," is in constant use as a reference book on electrical service. Packed with illustrations, diagrams and tables—arranged and indexed for easy use—this compact handbook covers all important points in the starting, ignition, lighting and accessory circuits. It gives mechanics a complete picture of how the electrical system operates, how to locate trouble by a fast and accurate checking procedure, and how to make proper repairs and replacements.

The Packard Certified Re-Wiring Manual is FREE to all fleet users of Packard cable. It will help you make the most of the extra MPR—extra Miles Per Replacement—that Packard cable provides. Packard Electric Division, General Motors Corporation, Warren, Ohio.

THERE'S *MORE*

MPR*

(*Miles Per Replacement)

IN PACKARD CABLE

Packard

REG U.S. PAT. OFF.

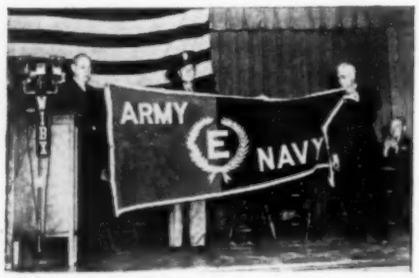
TRADE MARK

"Working for Victory"

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

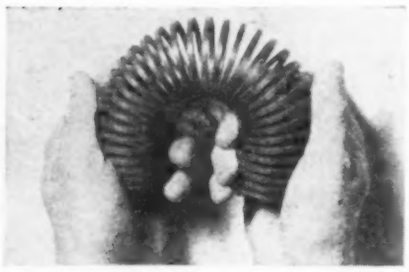
The Editor's Column » »

(Continued from Page 36)

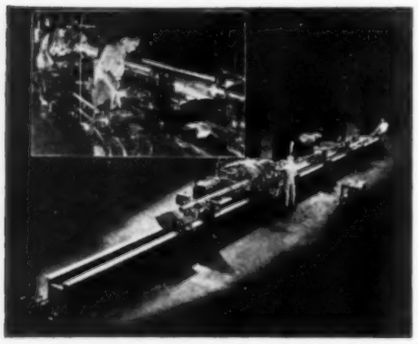


PRES. Geo. L. Brunner, Major H. R. Battley and Lucius Parker (oldest employee) hold aloft the Army-Navy "E" flag recently awarded to Brunner Manufacturing Co., Utica, N. Y., for excellence in production.

MODERN is the word for this new IHC mechanical cotton-picker. . . . The very first one made is shown here, being driven by none less than Fowler McCormick, president of International Harvester Company.



SPRING made of cast-iron! . . . It was cut from a cylindrical casting made of Meehanite, to show how flexible cast-iron can be. The Cooper-Bessemer Corporation, Mount-Vernon, Ohio, made this demonstration.



BIG lathe makes big guns at the Chevrolet plant. . . . Here you see a 90-m.m. anti-tank gun (no military secret) being made in a plant from whence Chevvies used to flow. Yes, some more bad news for the Axis.

300 MORE TANK TRAILERS

● The manufacture of 300 semi-trailer petroleum tanks to help relieve the oil shortage in eastern states was provided for in Supplementary Limitation Order L-1-G as amended last month by WPB. . . . Each semi-trailer to be manufactured will hold about 4,000 gallons, and transport more oil per pound of steel and rubber (and require less manpower) than any other type of vehicle available for general use. . . . Officials of WPB's Automotive Division and some truck experts agree that the use of these 300 trailer tanks for short hauling in the middle west will release about 1,500 railroad tank cars for the long haul to the eastern seaboard. . . . The present amended order supersedes the provisions in L-1-G which prohibited the production of truck trailers and semi-trailers. It permits the manufacture of the 300 tank trailers in such quantities, of such types and within such periods of time as may be authorized by the WPB Director General. . . . The completed tank trailers will be distributed in accordance with the provisions of Conservation Order M-100.

●

TIRE AND RECAP DATA

● There's a lot to be learned on rationing of gasoline and tires, if you know *where* to go for the information and will take *time* to read the literature issued by the Government. . . . Here are a few of the things we recommend: *"Mileage Rationing: Tire Regulations"*; this is a 66-page booklet bearing the identity "Form OPA R-49"; it tells you all you need to know concerning the new mileage rationing plan for cars and trucks, just who is eligible, how to go about obtaining a tire certificate and what the local ration boards are expected to do. . . . Then there is its companion booklet, *"Mileage Rationing: Gasoline Regulations"* bearing the identity "Form OPA R-540"; this is a 102-page booklet on the same order, only it is devoted exclusively to gasoline rationing. . . . If you are interested in prices and regulations on *used* tires and tubes, get a hold of OPA's *"Retailer's Bulletin No. 9"*, which tells all. . . . Still another is *"Retailer's Bulletin No. 6"*, devoted to Retreading and Recapping, which gives ceiling prices, service charges and such. . . . There is also *"Retailer's Bulletin No. 8"*, described as a tire dealer's guide to price regulations; this one tells you all about ceiling prices on tires, tubes, recapping, replacement parts and automotive service and repair charges. . . .There is also a price list available on the ceiling prices of the newly-announced "War Tires". . . . OPA informs us that it is extremely glad to place copies of such literature into responsible fleet operator's hands, but they urge you *not* to write to Washington for them. Instead, you can pick up copies at your local OPA branch office (in leading cities); they should also be available at your local war and price rationing board. . . . Really, you'll get a liberal education on the policies of governmental regulation from this literature; besides, you may *need* it in your business. All are free for the asking, but please don't write *us* for copies; we have but one of each in our files.

●

TAXIS FOR TELEGRAMS?

● Taxicabs may be used to deliver telegrams in emergencies when another medium of delivery is not available, it was announced recently by ODT. . . . Under the ODT's general order regulating the taxicab industry (General Order ODT No. 20), the use of taxis "for the purpose of making commercial deliveries of property" was banned. A recent legal interpretation of this provision of the order held that telegrams were included in the category of "commercial property". . . . However, a general permit (General Permit ODT 20-1) issued by ODT, effective immediately, makes it possible to use cabs to deliver "telegraphic, cable and radio communications" in cases where the information in the message is of an emergency nature, and where the message otherwise would be delayed in reaching the addressee.

●

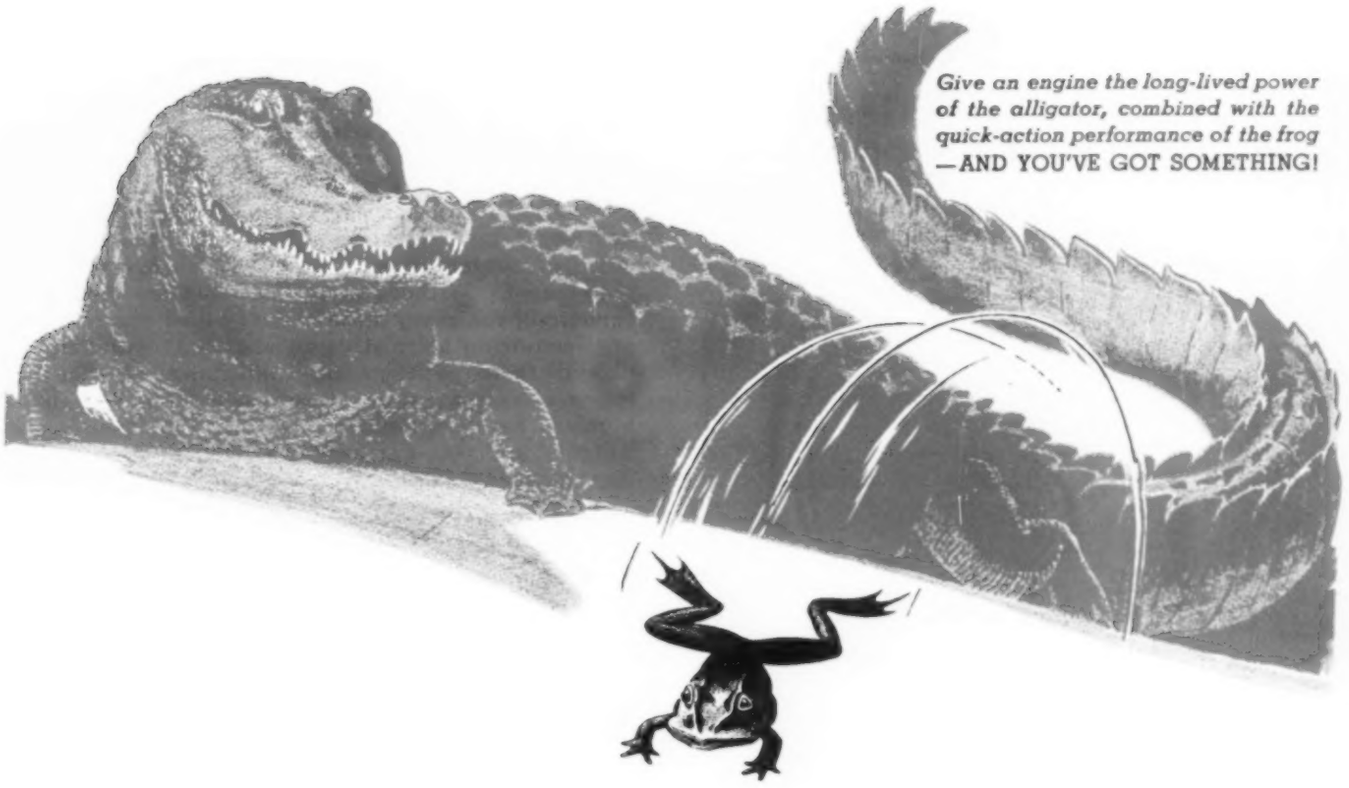
FLORISTS TAKE NOTE

● A general permit allowing local carriers to make three deliveries of flowers to a funeral home and two deliveries to a funeral in a private home on the same calendar day, was issued by ODT recently. . . . The permit (General Permit ODT 17-17) also allows local carriers to make one additional call to one point on the same day for the purpose of removing wedding decorations. . . . With respect to such deliveries, this new permit relaxes a provision in a previous regulation, General Order ODT No. 17, limiting local carrier deliveries to one a day to the same point. . . . The term "local carrier" includes florists who operate their own trucks, rent or hire them, etc., as well as for-hire carriers.

●

FAMOUS LAST WORDS

● "Well, if he insists on not dimming his headlights, then I won't dim mine either."



Give an engine the long-lived power of the alligator, combined with the quick-action performance of the frog —AND YOU'VE GOT SOMETHING!

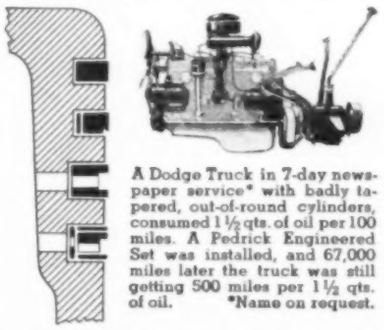
DOUBLE-TEAMED BY PEDRICK

in Heavy-Duty Piston Rings!

New S.A.E.-ODT Maintenance Recommendations call for the repeated use of expander-type piston rings to prolong cylinder-block life, save oil, gas, and critical parts . . . and get greater mileage and road-time out of all essential vehicles.

Follow these timely recommendations by installing Pedrick *E*ngineered Sets on every engine reconditioning job. By controlling both oil and blow-by, these compensating rings restore full power instantly and add thousands of economical miles of engine life. They achieve real savings in oil and gasoline right from the start. They compensate for cylinder inequalities, saving parts and mechanics' time.

PROVED IN DODGE ENGINE



A Dodge Truck in 7-day newspaper service* with badly tapered, out-of-round cylinders, consumed 1½ qts. of oil per 100 miles. A Pedrick Engineered Set was installed, and 67,000 miles later the truck was still getting 500 miles per 1½ qts. of oil. *Name on request.

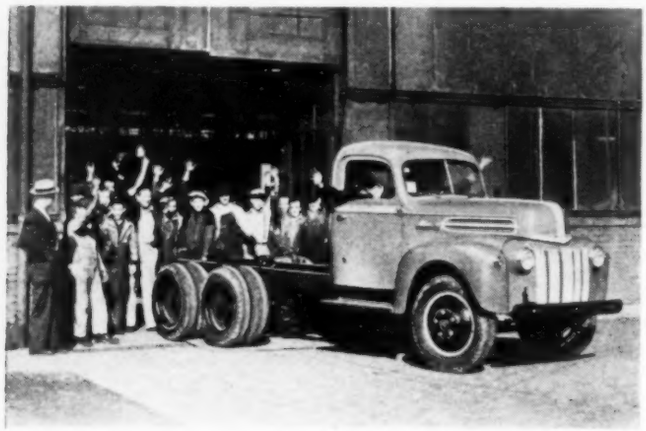
Your Pedrick jobber has 240 different "E" Sets, so precisely made that each is backed by a most *liberal ring-and-labor guarantee.* He also has the latest Pedrick Service Manuals and the new S.A.E.-ODT Maintenance Recommendations which will save your time in keeping your essential vehicles rolling. WILKENING MANUFACTURING CO., Philadelphia. *In Canada:* Wilkening Manufacturing Co. (Canada) Ltd., Toronto.

Pedrick

GUARANTEED ENGINEERED SETS OF PISTON RINGS

Thornton Drives for Alaskan Highway

THE THORNTON Tandem Company of Detroit, Mich., manufacturers of the Thornton Four-Rear-Wheel-Drive for motor trucks, is now making deliveries on 500 units for a prominent construction company, to be used on the new Canada-Alaska Highway.



The Thornton units are applied to Ford trucks and are then equipped with 6-yard dump bodies made by the Anthony Company of Streator, Illinois. These bodies are 10½ ft. long. The Thornton Four-Rear-Wheel-Drive utilizes two driving axles under the load and is said to provide heavy-duty performance for on or off-the-road operation.

The "Alcan" highway, which has been termed "America's Burma Road," starts at Edmonton, focal point for the railways and highways that run South and East of the principal industrial manufacturing and supply centers of the United States. Nearly 1,200 miles of new road has been cut through the forests to Fort Nelson, White Horse, in the Yukon territory, and then to Fairbanks. The highway totals 1,600 miles in length.

The Thornton Four-Rear-Wheel-Drive which has been on the market for many years, converts 1½ to 3-ton trucks to flexible, heavy-duty units. Because of the current difficulty in securing heavy-duty standard trucks, the Thornton Four-Rear-Wheel-Drive, used in connection with converted trucks of smaller capacity, is providing a time-tried answer to a vital need on this and other strategic projects.

●

Expect New Proposals as Legislators Meet

ADVANCE reports of prospective issues in the 44 state legislatures convening this year indicate that emergency war-time developments will be superimposed upon a growing list of highway-user problems.

Twenty-seven national groups of educators, farmers, organized labor, traffic engineers, enforcement officials, highway-users and others are sponsoring a program designed for introduction in state legislatures to (a) conserve vehicles, tires and road-ways; (b) conserve man-power and man-hours through accident prevention; and (c) secure most efficient use of roads and vehicles for essential transportation.

Federal agencies and the Council of State Governments are cooperating on a program to give state governors extraordinary war-time powers to regulate highway transportation to secure conservation of vehicles and tires. Varied reactions to this proposal are reported from different sections of the country.

Meantime, opponents of highway transportation are said to be no less than normally active in several states and some anti-highway legislation, dressed in the guise of conservation of essential transportation, is anticipated. Without diverting attention from war-time problems, many state highway-user organizations are sponsoring affirmative legislation and prepared to defend their positions on continuing questions of motor vehicle taxation, diversion of highway funds, highway barriers, reciprocity, motor vehicle sizes-and-weights, and post-war highway planning.

●

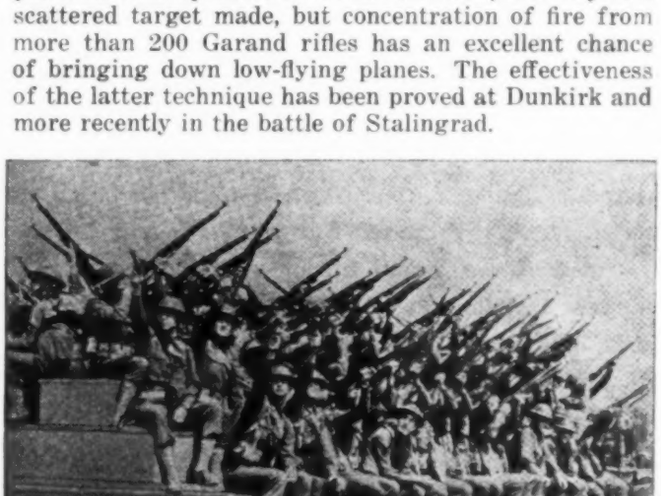
These Big Trailers to Carry Army Troops

TO the hundreds of essential uses of motor trucks in wartime, add another—the hauling of new giant truck trailers, designed to rush troops to danger zones.

Experiments conducted on the West Coast by the Army indicate that these 30-foot trailers will be widely adopted as troop transports.

Three platforms, pyramided in the form of steps for quick loading and unloading, provide seating capacity for 206 men.

The transport can be unloaded and the men fanned out over a fifty-foot diagonal circle in less than ten seconds. Thus, if enemy aircraft attack the transports and swoop down to strafe the men, not only is a scattered target made, but concentration of fire from more than 200 Garand rifles has an excellent chance of bringing down low-flying planes. The effectiveness of the latter technique has been proved at Dunkirk and more recently in the battle of Stalingrad.



The trailers are hauled by high-powered trucks and the entire unit rolls on fourteen wheels and four axles. The pyramided platforms allow ample space for comfortable travel when the troops are rolling to the front.

An important advantage of the truck trailers is the greatly decreased length of convoys that will be possible. While the widespread use of trucks has enabled the Army to move troops more than 300 miles in one day, even greater distances will be possible with the new transports. Twelve miles was once considered a good day's march.

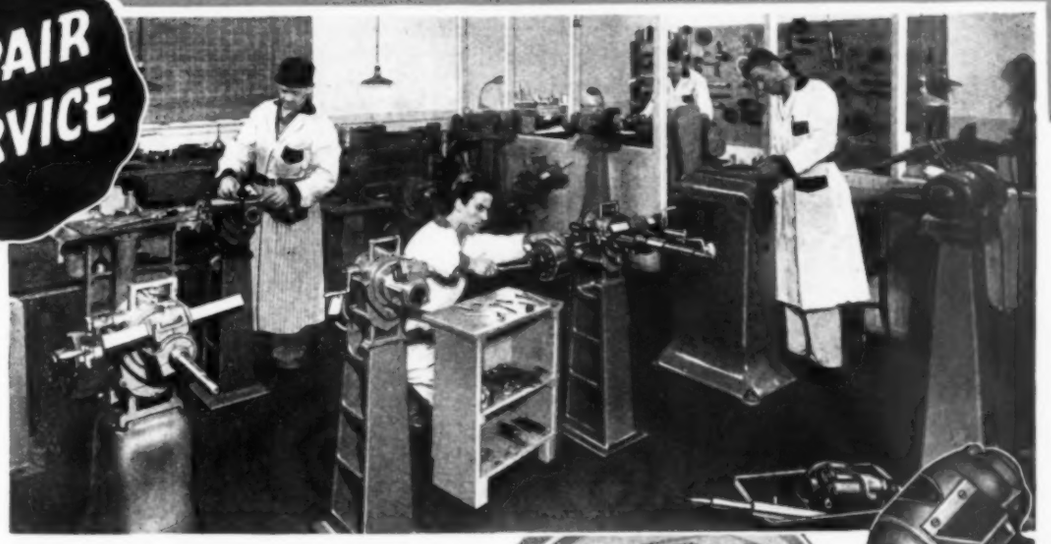
HARRY B. BARRETT

Barrett Says:

TO WIN THIS WAR *Transportation* MUST "KEEP A ROLLING"

Because our first obligation is to the armed forces, the supply of Barrett Precision Brake Service Equipment for truck, bus and fleet operators is limited, and can be furnished only where the required priorities exist. But, in order to help you "Keep 'em Rolling," we have created new life in our repair service department.

REPAIR SERVICE



Above is illustrated a partial view of our enlarged service repair department. If you have a brake drum lathe, or other brake service equipment that cannot be replaced and is in need of repair, write us for a reconditioning estimate. We will make every effort to help you in prolonging the life of your present equipment. No obligation.

The Famous

BARRETT BRAKE DOKTER

Hundreds of these heavy-duty Barrett Brake Dokters are now in service, saving brake lining and insuring trouble-free brakes for the Armed Forces and Fleet Operators.

BARRETT BRAKE DOKTER MODEL B-120-A

BARRETT EQUIPMENT CO.

World's Finest Brake Service Tools

2101-2107 CASS AVE. • • ST. LOUIS, MISSOURI

In the Automotive World

American Rubber Mission to Russia

THE American Rubber Mission to the Soviet Union, appointed by Rubber Chief Jeffers, has left for Moscow recently, to investigate the Russian synthetic rubber industry. . . . They will stay for several months. . . . It is also expected that Russia will send a similar mission to the U. S. to investigate American techniques and processes in the manufacture of Buna-S synthetic rubber.

•

State Cuts Down Car & Truck Use

THE Director of the Department of Public Works of the State of Rhode Island, and chairman of a committee arranging for the pooling of all state cars, recently reported that a total of 231 state-owned trucks and passenger-cars have been taken out of daily service. . . . A saving of approximately 65 per cent annually in gasoline, rubber and maintenance costs is anticipated, when the pool goes into full operation.

•

Road Magnet Used in Missouri

FLEET operators in the state of Missouri will be spared millions of tire changes in the opinion of the state's highway department, as a result of the work of its road magnet's coverage of the 8,200 miles of granular type road because, in the southwest section of the state alone, one pound of metal picked up contained many screws, tacks, bolts, wire staples and bits of wire. In one month the magnet covered 390 miles, picked up 4097 pounds of scrap metal or 10½ pounds per mile.

•

Louisiana Dentists Operate Trailers

THE State Dental Society of Louisiana is sponsoring operation of five automotive dental trailers for the examination of teeth of first and second grade public school pupils. . . . The trailers are fully equipped dental offices and services are provided indigent children without charge.

•

New Penalty for Bay State Speeders

MASSACHUSETTS motorists convicted of violating the 35-mile-an-hour speed limit in that state lose their drivers' license for seven days and if they are persistent violators they will lose their automobile registration plates, the Registrar of Motor Vehicles has announced.

Another Way to Save Gas Suggested

HENRY F. BAUM, of Ashland, Ohio, would save gasoline and tires by placing a small sign beneath traffic lights giving the miles per hour for motorists to drive to reach the next light on green. . . . For example: The average light might suggest 30 miles per hour; as traffic became more congested, speed would lower to 15 or 20 miles per hour; and as traffic thinned out, the speed might be increased to 35 miles per hour.

•

DEMAND for Ramco piston rings has made it necessary for the maker to lease this entire building, located in downtown St. Louis. . . . This is the fourth increase in Ramsey facilities in the past few years.

•

"Oldest" Rubber Article Scrapped

WHAT is probably the oldest rubber article received in the recent national scrap rubber drive, arrived at the Goodrich factory recently. . . . The item is a railroad car shock absorber, made in 1872. . . . Two parts of this 70-year old product, which Goodrich experts say can be reclaimed, were forwarded by a man in Tiffin, Ohio, whose father salvaged them from a railroad wreck near there, sixty years ago.

•

Huge Backlog of Horseshoe Orders

HORSESHOE manufacturing companies have reported a backlog of orders for horseshoes sufficient for five months normal operation, as a result of war-time restrictions on highway transportation. . . . Most of these factories are now loaded up with subcontracts on war production carrying a higher priority rating than the A-3 classification given horseshoes.

54,453 Communities Depend on Trucks

FORTY-THREE per cent, or 54,453, of the 125,617 communities in the United States are not located on railroads and must depend entirely on motor vehicles for their transportation, according to figures compiled by the Automobile Manufacturers Association. . . . Because of railroad abandonments and other factors, there has been a sharp rise in communities served only by highway transportation since 1930, when 48,000 of such communities were reported.

•

Industrial Tire Inventory Started

ONE motor manufacturer has inaugurated what is believed to be the first continuous inventory of employee's tires to be conducted by a large industry. . . . Under the program, cars with tires that need recapping will get a notice placed under the windshield-wiper, informing the owner of this fact. . . . If the owner fails to apply for recapping it will be recommended that he be denied future applications either for tires or recaps.

•

Priorities Change Highway Design

NEW JERSEY State Highway Department has announced that priorities on bridge and road construction materials have forced revision of completed plans and make necessary virtually new designs embodying the use of timber as a substitute for steel in bridge construction. . . . The thickness of concrete has been increased in roads where metal reinforcing rods cannot be obtained.

•

New Jersey Cracks Down on Speeder

A BROOKLYN motorist has been notified by New Jersey officials that his privilege of driving an automobile in that State on a New York operator's permit has been revoked because of two convictions for speeding. . . . This is the first suspension penalty under New Jersey's war-time regulation providing for summary revocation of driving privileges upon a second conviction for speeding.

•

Scotland Has Transportation Troubles

THE Scottish Road Passenger Transport Association has appealed to the public to cut down its travel to a minimum. . . . The Association approved a plan for auxiliary drivers and stated that further curtailment of public passenger transport services might create serious difficulties in the war effort.

•

Free Ride is Costly for This Husband

FAILURE to collect a fare from his wife and child cost a York, England, taxicab operator a fine of two pounds. . . . The operator used his vehicle during an air-raid alert to drive the family to a farm 1½ miles away. . . . Had he collected the regular charge for the trip, he would not have been guilty of an offense.

Announces

A NEW, NATION-WIDE CONSERVATION SERVICE

TO MAKE this new service available quickly, AC has placed trained men in the field to carry to all service organizations the latest and best methods of diagnosing trouble, testing, adjusting, and repairing AC products with a minimum of parts replacement. This will help to conserve material and shorten the time required for repairs.

Because all AC products are important to the conservation of gas, oil, diesel fuel, and tires; and because some of them are so indispensable that their failure means that the vehicle is out of service; you will find this new AC service of great value to your shop.

So, AC urges you to take full advantage of its trained service personnel. You will find that your vehicles will stay on the road longer, perform better, and cost less to operate.

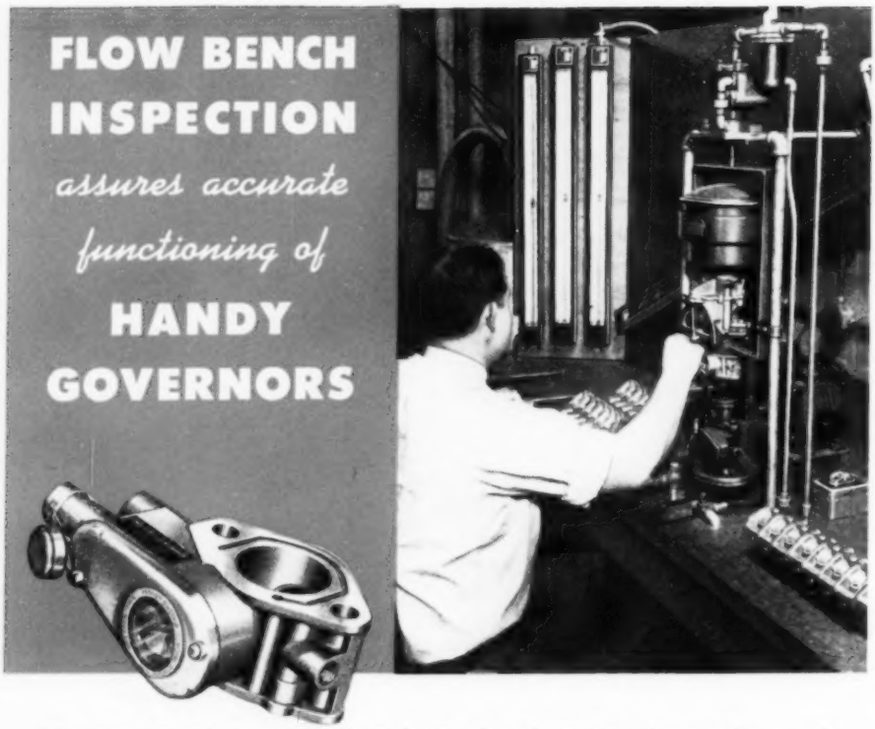
AC SPARK PLUGS • AC FUEL PUMPS • AC SPEEDOMETERS • AC OIL FILTERS • AC AIR CLEANERS
AC TEMPERATURE GAUGES • AC AMMETERS • AC OIL PRESSURE GAUGES • AC GASOLINE GAUGES

AC SPARK PLUG DIVISION — GENERAL MOTORS CORPORATION

FLOW BENCH INSPECTION

assures accurate functioning of

HANDY GOVERNORS



The Flow Bench is a practical device for simulating the conditions of engine operation. By means of this device, engine manifold and carburetor Venturi vacuums for any selected speed can be accurately reproduced. This type of device, first used as an inspection tool for carburetors, is used by King-Seeley Corporation for the production and final inspection of Handy Vari-Speed Governors.

As a result of this inspection, Handy Governors are accurately checked for performance under conditions which are identical to those under which they will have to operate. Not only is the no-load speed set on this Flow Bench, but operation is checked throughout the governing range. In addition, the surge, cheat and operation of the distributor vacuum valve are checked.

This method of inspection assures the effective and accurate functioning of Handy Governors when they are put into service.

KING-SEELEY CORPORATION • Ann Arbor, Michigan

HANDY *Visible Action* GOVERNOR

World's Largest Manufacturers of Automotive Governors

How We Comply With ODT

(*Continued from page* 39)

information which ODT requires, with hardly any extra effort at all.

Then, too, consider how efficient, how factually-founded our control actually is over our truck operations, from our own, somewhat selfish standpoint. Even our long-distance, over-the-road operations can be checked and controlled by means of this same system!

The net, over-all result of this record-keeping idea which we have recently adopted, is that our management has at hand *at all times*, some very *vital* information for controlling its operations and also for supplying governmental agencies with the legally-required information.

The system goes even further. It keeps our drivers and their crews of helpers constantly on their toes, since they know that their daily activities are always under constant daily surveillance.

On the other hand, among our customers are some who are charged on a time basis. These people can now feel confident that we actually have a *double* check for our invoices, and a fool-proof record of time computation.

The little device shown at the top of the second-page of this article is a simple totalling device, which makes it easy to total running time and idle time, regardless of the irregularity of the time, odd or even numbers, hours, fractions thereof, or minutes. It is furnished by the makers of the trip recorders which we use, and saves lots of time.

•

Calcium Chloride

(*Continued from page* 48)

11.5 pounds per gallon, it probably is based on calcium chloride."

Mr. Greene stated that motorists or fleet operators having solutions of unknown composition in their radiators can ascertain whether or not they contain salt by making the following simple physical test:

Put a few spoonfuls of the radiator solution in an iron skillet or dish (do not use aluminum) and heat it on the stove, letting the solution boil down slowly. If there is a substantial deposit of salt left, the anti-freeze was a brine solution.

A simple *chemical* test which the layman can apply, according to Mr. Greene, is as follows:

Put a small quantity of the radiator solution in a water glass and add silver nitrate solution with a medicine dropper. The formation of a white deposit or precipitate (silver chloride) will indicate that the anti-freeze was a brine solution. Empty the glass and rinse with household ammonia before using it for any other purpose.

Calcium chloride has its advantages when used on roads and streets to melt snow and ice. But if any of it has found its way into your cooling systems, your best bet is to get rid of it at once. This can be easily done by draining it all out and then thoroughly flushing and reverse flushing. If you run the engine while flushing, the heat will warm the water and help to thoroughly dissolve any salt crystals that may have formed,

(*Editor's Note:* There are some anti-freezes on the market, of reputable manufacture, in which the complete nature of the ingredients is not always disclosed on the can. No inference is intended that these may contain calcium chloride. Before using any makes that are not entirely known to you, perhaps it is best to inquire of the manufacturer, who will readily tell you whether or not there is any calcium chloride in them. Advice against its use for this purpose has been handed out for many years; therefore this article may not constitute "news" to many fleet men; nevertheless it's best to be on the safe side and give another look.—*H. C. F.*)

•

Sweden to Move to Conserve Rubber

IT IS expected that the Swedish Government will impose more stringent measures to conserve the critically short supply of rubber and to keep essential highway transportation moving.

Studebaker craftsmen again give "more than they promise"

The devastating bombing power and matchless fighting power of the Boeing Flying Fortress make comforting daily items in the war news. Much of the flying power for this invincible dreadnaught of the skies comes from Studebaker, long regarded as one of the world's foremost builders of motor car engines.

Studebaker, America's oldest manufacturer of highway transportation, is privileged to collaborate with Wright, America's oldest producer of airplane engines, in this vital assignment. And Studebaker is also building much other war matériel including tens of thousands of big, multiple-drive military trucks for the forces of the United Nations.

Today, as for generations past, Studebaker craftsmen make their watchword—*"give more than you promise."* Every Studebaker employee is justly proud of the achievements of his organization in the arming of our Nation and its Allies.

BUY U. S. WAR BONDS

War Trucks for the United Nations! Studebaker, famed for years for dependable transportation, has now become one of the largest producers of big, multiple-drive military trucks for the forces of the United Nations.

Studebaker BUILDS WRIGHT CYCLONE ENGINES FOR THE *Flying Fortress*

O.D.T. NEWS

HERE'S ANOTHER SET OF LATEST O.D.T. INTERPRETATIONS, OFFERED IN POPULAR "QUIZ" FORM, TO HELP YOU FULLY UNDERSTAND AND PROPERLY COMPLY WITH ALL OFFICE OF DEFENSE TRANSPORTATION REGULATIONS

STILL more interpretations from ODT's legal grist mill are being ground out in popular question-and-answer form, to help clarify various of the Office of Defense Transportation General Orders. . . . Here are a few more recent ones:

Question: If a local carrier, whose operations are subject to General Order ODT No. 17, makes a delivery to a customer, also a carrier subject to the order, at his place of business, may the customer, during the same day, send his own truck to the local carrier's place of business to pick up another order for delivery to the customer's place of business? . . . . **Answer:** No. The law provides that "no *person* shall cause to be made by motor truck * * * (c) more than one delivery from any one point of origin to any one point of destination during any calendar day ***." Under the definition of the term "delivery" in Sec. 501.65 (i) of the Order, points of origin and destination are referable to the points of origin and destination of a truck. A customer who ordered goods of a local carrier for delivery by truck would cause, in part, the first delivery by the local carrier's truck and would also cause the second delivery by his own truck. Both trucks would be operated from the same point of origin, viz. the local carrier's place of business, to the customer's place of business. Consequently, the customer would cause more than one delivery in a calendar day.

Question: Common Carrier X accepts from a shipper a shipment at point A consigned to point C. The shipment is routed over X's lines to point B and thence over the lines of delivering carrier Y to C. X's route is the most direct common carrier route available from A to B. The mileage of Y's route from B to C exceeds the mileage of the most direct highway common carrier route between those points by more than ten per centum but the mileage over X's and Y's routes combined does not exceed by more than nine per centum the mileage of the most direct common carrier route from A to C. Does either carrier violate Sec. 501.6(b)(2), as amended (General Order ODT 3 (Rev.)) by accepting and receiving the shipment for transportation? . . . . **Answer:** Yes. Both carriers violate the section which provides: "No common carrier shall: * * * accept or receive any property for transportation over any circuitous route, except when no adequate common carrier service over a direct route is available, * * *." In Sec. 501.4(j) "circuitous route" is defined as "any highway route or routes or combination thereof, the mileage of which exceeds the mileage of the most direct highway route by ten (10) percent or more." The definition applies both to the route of movement of a shipment, whether over the lines of one carrier, or over the lines of two or more connecting carriers, and also to the route of each carrier participating in the transportation of a shipment. Consequently, if the route of any participating carrier is circuitous by 10 per centum or more, although such route is but a segment of the entire route of movement of a given shipment, neither the initial carrier nor such participating carrier may accept such shipment for transportation over the circuitous segment.

NEW type of auxiliary gas tank for American planes, being built in mass production by women, on twin assembly lines, at a New England plant of U. S. Rubber Co. Much greater bomber range is promised. . . .

Question: Paragraph (a) of Section 501.32 of General Order ODT 6, as amended, regulating local common carriers by rubber-tired vehicle provides: "* * * no person shall cause to be made by vehicle and no local carrier shall make: (a) any special deliveries except * * *." Is this prohibition applicable to a local common carrier who provides only call-on-demand service? . . . . **Answer:** No. In Section 501.31(d) of the order, "special delivery" is defined as "a delivery by vehicle made at the special instance or request of a particular person other than as a part of a regular scheduled delivery service." This definition presupposes the maintenance or furnishing by a local common carrier of regular scheduled delivery service by which a particular person, shipper or customer may be served. If the carrier provides no such a service, or, if providing it the particular person, customer or shipper, is so located that he cannot be served thereby, a delivery to him is not a special deliv-

(*Please turn to page* 100)

AMERICAN HYDRAULICS, INC., SHEBOYGAN, WIS.
American Hydraulics Giant Lift Jacks
Capacity 1½ to 20 tons
AMERICAN
GIANT-LIFT
HYDRAULIC JACK
You Can Depend on an
AMERICAN

You, too, share this Award

The men and women of the Weaver Manufacturing Company are proud of the new flag that flies over our plant. But we know this signal honor can come only through unselfish cooperation and sacrifice, and not the least of these are the sacrifices made by our automotive customers. In view of the requirements of our armed forces, which naturally come first, we have been devoting a great majority of our production facilities to equipment for the military. Consequently it has been impossible for us to meet all of the crucial requirements of our civilian customers. For that reason we feel that you, too, share a portion of the Army-Navy Production "E" awarded to our plant on December 26th, 1942 for an "outstanding contribution to victory".

WEAVER MANUFACTURING COMPANY, Springfield, Ill.

Wheel Alignment Survey

(*Continued from page 42*)

of direction" and that some of the bad bends really require heat. But they are in the minority, by far.

Should truck wheels be balanced? "Why sure!". . . . That's what *we* tried to tell you in last month's issue on page 50. . . . The inspiration for this little bit of private investigation work on our part, came to us as a result of the next question, which asked, "*How much attention do you pay to wheel balancing?*". . . . On cars and light trucks the answers were: "Little" — 61; "Much" — 76; "None"—28; "No answer"—4. . . . . On heavy trucks and buses the answers were "Little"—60; "Much"—38; "None"—67; "No answer"—4.

As we told you last month, truck wheels must be balanced too! Our story sounded quite convincing (to us); we hope it convinced you, as well. If not, please believe that there's really something to it, according to the many complimentary letters which we have since received from vehicle manufacturers, government conservation officials, tire companies, fleet operators and others. If you haven't read this as yet, put it on your "must" list, please. We wrote it and we think it's good. Page 50, January issue.

Since the government has suggested ("ordered" would be a better word) that magazine publishers reduce their paper consumption this year, this article will of necessity be a bit briefer than former ones which covered similar surveys. As in all of them, we have in this one also asked some confidential questions as to makes of wheel-alignment equipment used, makes preferred, etc. Such data has been furnished to those fleet men who were good enough to work with us in this survey; sorry, but we can't reproduce it here.

Of course, there might have been other questions that we could have included, but we don't like to burden operators with too long a questionnaire. Lord knows we all have enough to do during these troublesome times. So that ends the story on alignment, and in case you'd like to ask how representative it is, we'll tell you that it includes the experiences of fleet operators in pretty nearly every state in the Union, as well as some from Canada, too.

If you'd like to see a list of the industries whose fleets participated in this survey, here it is: This will serve to give you a better idea as to the general coverage of it, and also an idea of the *tough* job it is to word a questionnaire that will be answerable by a fleet operator in *any* line of business. Fleets in these industries participated: Trucking, local and long distance; ice cream; dairy products; bakeries, public utilities; manufacturers; municipalities; petroleum companies; ice and coal dealers; contractors; building material companies; grocers; department stores; meat packers; drive-yourself companies; truck-rental companies; bus operators; brewers; laundries; county departments; state departments; federal departments; food products; bottlers; taxicab companies; lumber companies; newspapers; insurance companies; hardware wholesalers, etc.

So you see, this survey is *quite* representative. We would like to see a greater number of fleet operators participate in this monthly feature, in return for which you will get a private and personal copy of the *confidential* tabulation which we make. This contains all such information that we can't give here—such things as trade-names, etc.

This month's questionnaire promises to be unusually interesting. If you feel that you'd like to get the confidential report which it will bring, just turn to page 83, tear out the page, fill in the answers to as many questions as you can (or as you care to) and send it back to us. Rest assured that everything is kept *confidential*, and that your name is *never* mentioned to anyone, or at any time. It's your cooperation that we need to make this thing a success. Thanks.

50 Percent of All Tires Unfit to Retread

FAILURE to present tires for retreading before they are worn too far is destroying the usefulness of many tires now in service, in the opinion of engineers in Goodyear's tire-design division.

Tire inspectors and retreaders have reported that up to 50 per cent of the tires inspected for retreading have passed the stage where a satisfactory retreading job can be done. The inspectors' and retreaders' report dealt with tires submitted by Class B eligibles for retreading.

There are three principal reasons for rejection of tires for recaps, the Goodyear tire experts said:

1—Tires worn down so far that satisfactory adhesion of the retreading material is impossible.

2—Breaks in the carcass too large or too numerous for satisfactory repair before retreading.

3—Cords have been loosened by under-inflation or from having been run flat.

National service in preventing waste of rubber through excessive wear of tires intended eventually for retreading can be assisted by observing the following principles:

1—Speeds maintained below 35 miles per hour.

2—Accurate inflation weekly.

3—Outside and inside inspection to catch little breaks before they become larger.

4—Rotation of the tires for even wear.

5—Regular wheel alignment and brake adjustments.

6—Wheel balance.

7—Having tires inspected when they become smooth, in order that retreading can be accomplished before it is too late.

Truck tires should be removed for retreading with a minimum of one-eighth of an inch of the original tread remaining on the centers. Passenger tires should be removed for retreading while they still contain a minimum of one-sixteenth of an inch.

Where irregular wear or operating conditions result in more rapid wear in small sections of the tread, the tire should be removed for retreading at the time the tread has worn through in any spot, exposing the layer of cushion gum directly under the tread. This prevents the entrance of moisture and deterioration of the carcass fabric, as well as insuring better adhesion when the retread is applied.

●

Grange Opposes Highway Barriers

REMOVAL of state highway barriers impeding efficient transportation and "free and untrammeled encouragement of all means of transportation" are among objectives of the National Grange adopted at its recent meeting at Wenatchee, Washington. . . . This nation-wide farm organization also went on record as opposed to fixing an arbitrary limit on the radius of operation of motor vehicles and favored increasing safety programs to reduce accidents on the highways and in the homes.

ODT Appoints Two in Local Delivery

APPOINTMENT of Raymond Skinner, of Memphis, Tennessee, and Frank G. Reed, of Chicago, Illinois, as members of the staff in the Local Delivery Section of the ODT Division of Motor Transport, was announced recently. . . . Mr. Skinner is president of the Forest Hill Dairy, of Memphis, and of the Anthony Pure Milk Co., of Nashville, Tenn. . . . Mr. Reed is former vice-president of the Crerar Clinch Coal Company at Chicago, and was in charge of operations of the Suburban Coal & Ice Co., at LaGrange, Ill., and of several other coal firms.

Alex. Scherer Gets ODT Post

THE appointment of Alex K. Scherer, of Ottawa, Ill., as assistant chief of the property carrier section in the Division of Motor Transport was announced recently by ODT. . . . Mr. Scherer is president of the Scherer Freight Lines, of Ottawa, Ill. He also is a director in the Central States Motor Freight Bureau; a director in the Motor Carrier Conference of Illinois; vice-chairman of the Common Carrier Division of the American Trucking Associations, Inc., and former president of the Central Motor Freight Association.

USE YOUR GAUGE

BEFORE

YOU ADD AIR

TO PREVENT 'FLATS'

Do you use a gauge just to find out whether your tires are carrying the recommended pressure? If so, you are overlooking an important use of the gauge . . . that is, to detect *excessive pressure loss* and thus help prevent flat tires.

FOUR STEPS HELP PREVENT FLATS

First, keep air-tight caps screwed down tight on all tire valves. Then you know the valves can't leak.

Second, check the exact amount of air pressure in each tire with an accurate gauge and record the pressure. (Use a separate record card* for each vehicle.)

Third, if necessary, re-inflate tires to recommended pressure.

Fourth, compare the recorded tire pressures of all tires on each vehicle. If one tire has apparently lost more air than its mates something is wrong; you may have a puncture. Have the tube checked immediately before underinflation damages the tire.

*To start this plan now, operators of fleets of vehicles can get a supply of commercial Tire Pressure Record cards, no charge, by writing to Schrader.

ARMY E NAVY

COMPARATIVE AIR LOSS TEST

THE Schrader SYSTEM OF FLAT TIRE PREVENTION

A. SCHRADER'S SON, *Division of Scovill Manufacturing Company, Incorporated,* BROOKLYN, N. Y.

How Army Trains Drivers

(*Continued from page* 62)

doing." Each student is put through a bewildering assortment of exercises, from maneuvering in line on the vast macadam "black-top," to cross-country convoy driving, up steep hills and along narrow wooded trails, through mud, shale, dust and sand. Blackout driving is performed under modified blackout conditions on the road net of adjacent counties. The top picture on this article shows the "obstacle course" with its steep hills, narrow wooded trails, mud, shale, dust and sand.

Students are graded on their aptitude and interest, as well as on the technical skill that they may require. The more promising operators receive special training on tractor-trailers, wreckers and other large vehicles.

These are the men who will carry the supplies in tomorrow's offensive. Upon the training they receive now depends, perhaps, the outcome of tomorrow's battles.—*This information released by U. S. Army Public Relations Office, Camp Lee, Va.*

●

Stretch Idle Tools

(*Continued from page* 60)

What can be done to get these idle tools back to work? . . . How can they be saved from this idleness and put to work to help ease the present tool shortage and perform a vital service in our defense transportation maintenance? There may be many solutions to this problem.

The Snap-On Tools Corporation, Kenosha, Wis., for example, has formed a "Tool Enlistment Division". This is not a complicated plan; no vast tool pool that might strangle itself under its own weight and red tape, but a simple, workable method that should benefit both the man who wishes to sell his tools and the man who would buy them.

In the January issues of nine automotive magazines, under the caption, "*America Needs Your Idle Tools*", Snap-On's Tool Enlistment Division emphasizes the urgency of the small tool situation and offers a simple coupon, with boxes to check if tools are either available or wanted. The coupon should be mailed in directly to the division, or they can be called on the telephone at their nearest branch office and the information tendered.

The Snap-On plan is to bring buyer and seller together, and to make a fair appraisal as to the value of the tools being sold, if such a valuation is needed, the big idea being to put the idle tools back to work. Additional advertisements are scheduled to follow. Since the whole thing is purely a non-profit venture, fleet operators are urged to cooperate to every possible extent in this campaign to get all idle tools back into the garage. These tools *must* be put to work if we are to continue to do a proper maintenance job!

Fleet operators may also be familiar with the Van Norman plan of re-allocating used shop equipment, which was inaugurated last year and is being continued into 1943. Under Van Norman's plan, called the "Van Norman Equipment Re-Distribution Plan", fleet operators and garage operators are asked to write directly to Van Norman Machine Tool Company, Springfield, Mass., giving full facts as to any shop equipment which they would like to dispose of, such as type, make, age, model, specifications, serial number, actual condition and price asked.

Data on equipment available is then published in the next issue of "*Van Norman Shop News*", which is sent to *every* automotive jobber in the country, regardless of what shop equipment they handle. Thus the shop operator who is seeking used equipment can just telephone his local jobber, who always has an up-to-date list, and can arrange to obtain the wanted equipment, if it is available. A recent issue of "*Van Norman Shop News*", for example, contained almost 500 listings of equipment in good condition and for sale.

These two manufacturers are to be commended on their sincere efforts to be of service to the automotive industry in a time like the present. Through their national service organizations they are attempting to draw all idle tools and equipment into active service. Cooperate with them. Let's help to put all idle tools back to work for America!

●

Tubeless Tire Idea

(*Continued from page* 86)

War Transportation Committee and the Petroleum Industry War Council.

The big idea, of course, is to save the rubber normally used in the inner tube. As before stated, the McGay development is *not* a manufactured product; it is simply a conversion idea which, to our knowledge, has only been applied to passenger-cars thus far. The publicity which it has earned seems to stress its novelty, more than its actual factual accomplishments. It would seem a good thing to do, in the event that it ever became impossible to obtain inner tubes for existing tires.

So far as the use of this idea on *truck* tires is concerned, we have seen no data. Tire men to whom we have talked fear that the air without tubes will eventually work its way between the cord plies and rubber, forming blisters and tending to produce ply separation. This could be overcome, perhaps, by using some sort of a thin lining on the inside of the tire. If, as it is believed, all tires are porous to some extent, it would appear that the use of this idea on conventional tires would lead to much air-loss and lots of under-inflation, which would only defeat its purpose, i.e., to save rubber.

It is also believed that there will be considerable air-loss at the beads, especially where tires are run on poor roads and have to mount obstructions, etc., and where loads vary greatly, as in the case of truck tires. Some people also fear that the beads will pull away on sharp curves, letting the air out.

There is also the possibility of some old tires being stretched somewhat oversize, in which case mounting without tubes would be extremely difficult, if not impossible, as such tires will not fit snugly to the rim. The McGay experts tell us, however, that they have solved this problem by encircling the circumference of the tread with a chain or rope, using some means of tightening the chain or rope so as to compress the tire and expand the two beads outward, to facilitate their seating on the rim during the initial inflating.

And that's about all we know about tubeless tires to date. We do not care to definitely recommend any "wholesale" conversions to tubeless tires. At least, not until some of the major rubber companies get in back of the idea and place their official stamp of approval on it. Or at least, not until you find yourself absolutely unable to get the necessary inner tubes, which condition we do not believe has arrived as yet.

●

O.D.T. Interpretations

(*Continued from page* 96)

ery and is not prohibited by the order.

Question: May a customer or shipper who has employed the services of one local common carrier to make a delivery between two points employ the services of a second such carrier to make a subsequent delivery on the same day between the same point of origin and the same point of destination? . . . . **Answer:** No. Section 501.32 provides that "* * * no person shall cause to be made by vehicle and no local carrier shall make: * * * (c) more than one delivery between any one point of origin and any one point of destination in any one calendar day, except: * * *". Under this provision a customer or shipper is clearly prohibited from causing to be made by the vehicles of local common carriers more than one delivery on the same day between the same point of origin and the same point of destination, regardless of whether the deliveries are made by the same local common carrier or each is made by a different local common carrier.

Question: May a local common carrier maintain or furnish more than one regular scheduled delivery service a day over the same routes? . . . . **Answer:** Yes. However, by reason of the provisions of Section 501.32 (c) such carrier may not, in maintaining or furnishing such service, make more than one delivery on the same day between the same point of origin and the same point of destination, excepting such special deliveries as are not prohibited by Section 501.32 (a) of the order.

More of these questions and answers will run in March.

FOR VICTORY TODAY AND SOUND BUSINESS TOMORROW

Get This Flag Flying Now!

This War Savings Flag which flies today over companies, large and small, all across the land means *business.* It means, first, that 10% of the company's gross pay roll is being invested in War Bonds by the workers voluntarily.

It also means that the employees of all these companies are doing their part for Victory . . . by helping to buy the guns, tanks, and planes that America and her allies *must* have to win.

It means that billions of dollars are being diverted from "bidding" for the constantly shrinking stock of goods available, thus putting a brake on inflation. And it means that billions of dollars will be held in readiness for post-war readjustment.

Think what 10% of the national income, saved in War Bonds now, month after month, can buy when the war ends!

For Victory today . . . and prosperity *tomorrow,* keep the War Bond Pay-roll Savings Plan rolling in *your* firm. Get that flag flying now! Your State War Savings Staff Administrator will gladly explain how you may do so.

If your firm has not already installed the Payroll Savings Plan, *now is the time to do so.* For full details, plus samples of result-getting literature and promotional helps, write or wire: War Savings Staff, Section F, Treasury Department, 709 Twelfth Street NW., Washington, D. C.

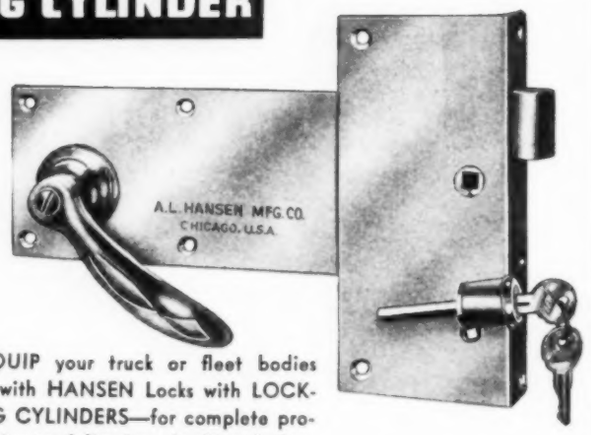
Save With

War Savings Bonds

This Space Is a Contribution to America's All-Out War Program by

FLEET OWNER

for VICTORY *over Merchandise Losses*
Use HANSEN LOCKS
with LOCKING CYLINDER



No. 60-L EXTENSION LOCK (right-hand), with Locking Cylinder and two keys. Made in one piece with inside handle.

No. 124 SLAM-and-TAKE-UP LOCK with Locking Cylinder and two keys. Can be supplied with either Flush or "T" Handle.

EQUIP your truck or fleet bodies with HANSEN Locks with LOCKING CYLINDERS—for complete protection to deliveries. Locking devices have been added to many of the standard Hansen Locks, including Locking Cylinders, Locking Handles and special types of Locking Mechanism. It costs little extra to lock-equip your Locks—and it's much safer for merchandise.

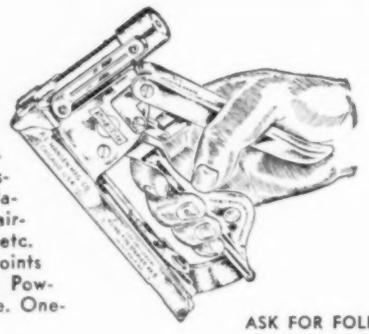
Hansen Locks are noted for their rugged strength, simplicity and serviceability. The Hansen Line includes Refrigerator, Slamming, Slam-and-Take-up, Cab, Extension and Sliding Door Locks—also, Regulators, Hinges, Handles, etc.—*all built for service!*

On your next order for commercial bodies—one or a fleet—be sure to specify HANSEN—the *Hardware for Hard Wear!*

Ask for CATALOG *if you don't already have one*

HANSEN ONE-HAND TACKERS

Used in automotive and airplane industries for various tacking and fastening jobs — insulation, seat covers, airplane construction, etc. For driving Tackpoints up to ½" length. Powerful. Easily portable. One-hand operation.



ASK FOR FOLDER

A. L. HANSEN MFG. CO. 5043 RAVENSWOOD AVE. CHICAGO, ILL.

ODT's Outlook for 1943

(*Continued from page* 44)

crankshafts and other parts take alloy steel, and this is a critical material. Every part that goes into a civilian truck takes so much steel away from military production. Production will be carefully trimmed to actual requirements.

There is only one possible conclusion: Wherever mechanics and facilities are available, worn parts which can be rebuilt or otherwise repaired should be reclaimed and put back into service. Modern rules of lubrication should be studied and applied without fail. Putting off a lubricating job may mean costly—or even impossible—repairs later on. Correction of minor mechanical ailments which can lead to major breakdowns if neglected should be made promptly.

Vehicles—There were some local tie-ups due to lack of equipment, but so far there has been no serious overall shortage of trucks. There are several reasons for this. When the war started, there were 4,838,378 trucks under registration in the United States—the largest number in the history of the industry. Although production of trucks for civilian use was stopped shortly after Pear Harbor, replacements were not altogether shut off. New vehicles in the hands of dealers were frozen and are still available to operators who need them for essential operations. In addition, many truck services have been eliminated or curtailed, which has resulted in the release of some trucks from one operation to another and has cut down wear and tear on others.

The large supply of vehicles in operation at the beginning of the war, plus a combination of reduced mileage, controlled replacements, improved operating efficiency and better maintenance, is a partial explanation of the fact that the trucking industry generally was able to hold its own during 1942 despite wartime increases in truck traffic and lack of normal supply of new vehicles.

The coming months, however, will produce new problems—problems that will vary from month to month. As manpower shortages increase—as they are bound to—proper maintenance will, in turn, become more and more difficult to obtain. On the other hand, as more and more waste mileage is eliminated from truck operations, generally, maintenance problems will be eased somewhat.

Applications reaching Washington through the filter of the Local Allocation Offices for authorization to purchase new trucks have fallen from a peak of 3,000 a week last Spring to between 800 and 900 a week. ODT officials cite this decline as an indication that actual need for replacement vehicles has been offset to a great extent thus far by the conservation programs already in effect.

While no figures are yet available on the number of commercial motor vehicles scrapped during 1942, it is expected that they will total more than 200,000. During 1943, the gap between the number of vehicles scrapped and the number available for replacements can be expected to widen substantially. During 1941, the last normal year of operation, more than 500,000 commercial motor vehicles were scrapped, while less than 50,000 vehicles have been allocated from the new truck pool since rationing started last March.

Over-the-Road Service—The continuance of adequate over-the-road motor transport also can be expected to become increasingly difficult during 1943. Here's where the war load is heaviest already, and production did not hit its full stride in 1942. While there has been no serious shortage of over-the-road trucks and trailer combinations up to the present, the increase in traffic during the past months has left less time than normally for maintenance of equipment, and as the manpower situation becomes tighter, maintenance problems will assume larger and larger proportions.

The tonnage hauled by over-the-road trucks has set successively

higher records in recent months, and new records are in prospect. These records have been made possible not by any substantial increase in the number of vehicles pressed into over-the-road service but by heavier loading, reduction of empty mileage and greater efficiency in operations all along the line.

Still further increases in tonnage handled without corresponding increases in the number of vehicles in service is to be expected in over-the-road transport, but further mileage reductions in this field must be made largely through the formation of joint action plans to eliminate duplicating operations and otherwise improve efficiency. A number of these plans have been approved in the form of ODT orders and are bringing real mileage savings.

Local Service—A substantial part of the 40 percent mileage reduction necessary to meet the 55 percent reduction in crude rubber available for 1943, as compared with 1941, will have to come from local delivery operations. The ODT estimates that mileage already has been cut by more than 25 percent in this field, but it is believed that a much greater reduction can be made during 1943, without loss of needed service to the public.

Curtailment of services, such as the elimination of call-backs, special deliveries and reduction in frequency of deliveries, was principally responsible for the mileage pared from local delivery operations during 1942. In 1943, the ODT looks chiefly to the formation of more joint action plans for the additional savings needed to put the trucking industry "over the top".

Farm Transportation—One of the most serious transportation problems facing the country for 1943 is in the farm truck field, where increased production has resulted in greater use of vehicles, where the average age of trucks is traditionally greatest and where advanced maintenance facilities are not always available.

The extent to which farmers and others engaged in the transportation of farm products and supplies cooperate in the mileage saving program and the degree to which maintenance practices are improved, will be important factors in preserving farm transportation during the coming months.

A plan was announced by the ODT last October 16, whereby everyone concerned with the primary movement of farm products—producers, carriers, processors and others may act jointly in their respective areas to conserve motor truck equipment in the movement of farm products from growing and producing areas to storage and processing plants and consumer markets.

As an additional step to help farmers keep their trucks rolling, County Farm Transportation Committees have been set up by all U. S. Department of Agriculture County War Boards. There are 3,022 of these committees—one for every agricultural country in the United States.

Farmers and all others concerned with truck transportation to and from the farm are urged to get in touch with these committees and to work with them in a continuing effort to keep their trucks going. The ODT, it was pointed out, will do everything possible to prevent a breakdown of farm transportation. At the same time, the ODT must rely largely upon those engaged in farm transportation to take whatever individual and collective action they can—on their own initiative—to assist the conservation effort.

Winter Operation

(*Continued from page* 46)

engine wear. (g) Excessive oil consumption. (h) Poor fuel economy. And lastly, and of particular significance right now, the rapid build-up of carbon deposits in combustion chambers, due to unburned fuel ends and oil that reaches the combustion chamber and which is not completely burned up.

It is the last mentioned evil that helps to complete the vicious circle. Spark plugs become quickly fouled, to further aggravate the condition,

Give your Wayne Compressor a chance and it will save power and serve you many years longer!
WAYNE SERVICE
WAYNE SERVICE
ON THE JOB NOW AND ALWAYS
Your Wayne Air Compressor couldn't be replaced today for any money! It's important to keep it lubricated and adjusted. Blow out the water from the tank and clean the muffler at regular intervals. See that the air at the intake is free from dust or grit, with plenty of "breathing room." You'll notice the difference in power bills and longer life! When serious trouble develops, call for Wayne service.
THE WAYNE PUMP COMPANY
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Buy More Bonds!
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AIR COMPRESSORS

SAVE YOUR TIRES

USE *Heat-Resisting* TIRE VALVE SEALS—

No. 664
VALVE CAP
Heat-Resisting
Rubber Seal

No. 100-BB
VALVE INSIDE
Heat-Resisting
Rubber Seal

Maintenance of air pressure is the prime necessity to tire conservation. You must keep valves air tight. That's why valve caps and insides with heat resisting seals are so vital under the abnormal heat conditions common in heavy duty motor transportation service. These extra protection valve parts guard against air loss, save tire wear, cut down service delays. And the cost is no more than for ordinary equipment. Get them from your jobber or tire supplier, today.

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SAVE RUBBER for VITAL WAR NEEDS

DILL *Heat-Resisting* VALVE CAPS AND INSIDES

and the carbon deposits automatically raise the compression-ratio, thus making the lowered-octane fuels more difficult to burn properly, accentuating the condition known as "fuel knock" and taking toll in engine damage while drastically hampering engine power and performance.

Along the circumference of our vicious circle we also run into that inanimate object known as the crankcase ventilating system. Many such systems were designed to properly function at vehicle speeds *above* 35 m.p.h. In addition to the engine's not running hot enough at this speed, they won't get the crankcase ventilation to which they are entitled, which will undoubtedly result in an acid condition of the oil and a tendency towards sludge formation, unless the proper additives or inhibitors are properly employed, to protect against such hazards.

Another thing encompassed by our vicious circle is that much-talked-about device called the oil filter. Authorities agree that oil filters in general can't do much of a job on a cold motor. Not that we advise you to "take it off" as the popular song goes, even though the grape-vine system of communication indicates that engineers of one major car factory, at least, are in some cases recommending such a thing, and are going back to 500-mile oil changes.

It would seem far easier, however, to try our utmost to attain warm enough engine temperatures. The tricks are many and simple. The most common method is to restrict the flow of coolant by special "hot" thermostats; but those are "out" because of material shortages. Radiator shutters, for some reason, have not enjoyed the popularity which they deserve, especially the automatically-operated ones. Instead, leatherette, cloth and even card-board "shields" have proved a somewhat satisfactory substitute. So our first step, therefore, is to use *something* on the outside to keep cooling systems warm.

Another method is to reduce the amount of air pulled in by the fan, which can be done by removing the fan blades completely, removing some of them, cutting them down, changing the pitch by twisting the blades, or by installing a larger fan pulley to cut down fan r.p.m.'s. We wouldn't advise you to mutilate the fan, however, as you may not be able to get another when hot weather comes; otherwise any of the other changes that you make may be o.k.

Those "overcoats for crankcases" have also helped somewhat to keep engine oil warm. A popular composition was made out of rubber, cork and a plastic binder, but it appears that this, too, is "out" for the duration. But we *should* take advantage of some of the simpler methods mentioned above. *Anything* that will help the motor hold its heat!

Quite a "book" could be written on engine temperature control, but as this is but one of the segments in our vicious circle, we think we've said enough in this brief article.

What other troubles are included? Well, there is the problem of detonation or fuel knock. We cannot always, of course, set spark timing back far enough to entirely eliminate the knock; for then, we won't develop our full power and will run into other motor ills. We cannot always lower compression-ratios by cutting down pistons (as has been suggested) or by using two head gaskets instead of one. The one gasket itself is hard enough to get and to keep tight, and many fleets won't want to do this. What else might we do to get rid of fuel knock, and what harm does it do, anyway? There's little else one can do, but there's harm a'plenty that will come from engines consistently run with decided fuel knock.

First, there's more to it than a lot of objectionable noise. Tests have shown that as the knock increases in audibility, the power developed by the engine drops off, also the engine r.p.m. And when we step on the gas to pick up more power, we only aggravate the condition by raising the compression and increasing the knock. The knock itself is transferred in the form of a very definite sharp blow to the top of the piston, traveling on

through the connecting-rod and thence to the crank-pin and main bearings. Pistons have been known to break up, due to knock, and bearings to pound out. And you know what usually happens after that.

While speaking of bearings, we learn from a leading bearing manufacturer that future bearing production will utilize a different alloy, known as a "high-lead content" babbitt. In other words there will be less tin and antimony in them, practically no copper, cadmium or other scarce metals, but an increased amount of lead, which is relatively plentiful. This means that we are going to get *softer* engine bearings for replacement (according to one manufacturer) and that our picture will get blacker and our vicious circle intensified, because engine detonation will pound them out just so much easier; get it?

This same manufacturer cautions against knocking motors, due to fuel-knock; he advises retarding the spark, lowering the compression-ratio and even increasing the oil pressure to the bearings, without regard to oil consumption—just to make the bearings last. In fact, the last time we talked to him he was a very much upset person—and right in the center of our vicious circle, too.

Out of the blackness, however, streaks a bit of light. Maybe the answer is more maintenance. It's comparatively easy to attain higher operating temperatures if you but half try. This will take care of a great many of our problems. Where maintenance comes in is in *keeping combustion chambers clean.* Maybe we'll have to pull off cylinder heads and scrape carbon every 5,000 miles, instead of 10, 15 or 20,000. We certainly shall have to clean spark plugs at 5,000 miles; perhaps oftener. With even one out of a full set of plugs just a bit too dirty, the additional load imposed on the other cylinders is likely to raise the work-factor enough to produce a fuel knock, all other things being o.k. Cleaning spark plugs is easy and is perhaps the first step.

The cleaning of combustion chambers is the next. This can be done manually. It may also be done through the use of chemical motor-purges, carbon-removers, tune-up oils, etc.—as recommended by the makers. Or, perhaps treated oils or special additives used in the oils, may help to keep down the formation of carbon and make our service operation just that much less frequent.

We, of course, are not recommending any special products or methods. Most fleet men are carbon-wise in this day and age, and we are simply calling to your attention the fact that clean combustion chambers are more vitally necessary than ever.

Getting back to volatility. A lot of hard starting in cold weather is often blamed on the gasoline when something else is at fault. Light oils are a partial answer, and the use of additives, such as pour-point depressants, etc., is advised, if you can't always get the oil as light as you would like it. Perhaps the oil companies *can* give you what you should have in a winter oil; seek their advice and follow it—is always good procedure. If not, you can always thin them out with good products especially designed for the purpose.

Cold-weather and low-speed operation is also conducive to sticky valves, sticky piston rings and perhaps the formation of gum and varnish. True, these are also the products of "peak load" operation, and even if you do not attain high road speeds, the peak loads may be there just the same, so be on the lookout for sludge and varnish, and use whatever you are accustomed to using, to help keep it down.

Cold weather operation is also a good producer of scuffed pistons, rings and cylinder walls, as well as crankcase dilution and the various things mentioned above. So, if you do your utmost to keep combustion chambers *clean*, and run your motors *warm* enough, we think you'll be able to pull through without too much grief. A little more maintenance maybe, but a few extra dollars spent in the shop will pay big dividends in the long run.

"...and here's the little device that does it!"

● How is it done? Often merely by eliminating a 20 minute or 30 minute delay. Suppose this: "The truck gets home at 4 o'clock, and it doesn't quite pay to send it out on another trip." If the truck had got home at 3:30 then it would have paid to make the extra trip. Same thing at noon: "Here's the truck coming in at 11:15. Well, let's see, it's almost lunch time, so we'll wait till after lunch before we send it out."

This is a thing which happens again and again and generally it doesn't correct itself, until *Servis Recorders* are installed and their charts show daily all wasted time—all delays.

Send today for booklet—"Ten Ways of Getting More Work Out of Motor Trucks."

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Been Keeping Trucks Busy for 30 Years

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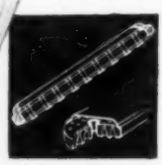
DOES A BETTER JOB AND SAVES THE FINISH

Durable protective bumper all around the edge.

Speed-Wash fountain brushes are used in scores of commercial fields. Users include: Southwestern Greyhound Lines, Kroger Grocery and Baking Co., Shell Oil Co., Coca Cola Co., United Parcel Service.

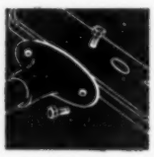
Tufts are hand drawn with rust proof wire.

Handle is light weight electric welded steel tube.



Eight evenly spaced jets provide a steady stream of clean water.

Connects with any standard size hose coupling.



Brush is easily detachable from handle, economical to renew.

ADDING the Speed-Wash to your washing equipment is like hiring another man — WITHOUT PAY.

It's an actual fact, proved in hundreds of cases, that the Speed-Wash cuts wash job time between 40 and 60 per cent. Here's the reason: One man does the complete work of soaking, scrubbing and rinsing in ONE operation — without changing tools and without interruption. The ease with which these three jobs are done together allows the Speed-Wash to be a man-sized tool, cleaning a 12″ path with each stroke.

Unique Construction For Faster, Better Work and Longer Life

The Speed-Wash fountain brush is made with first quality horsehair tufts that are hand drawn into the block with rust proof wire. They cannot come out or come loose. Eight evenly spaced jets provide a steady stream of clean, fresh water. Tufts are always clean and free from grit. Sturdy bumper protects against marring finish. Brush is detachable from the handle and renewable at low cost. Handle is an electric-welded steel tube which weighs about the same as aluminum. Handle socket is at one end and standard hose connection at the other.

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Order today. Priority rating of A-10 or better will insure prompt delivery. Send check or money order to . . .

MILWAUKEE DUSTLESS BRUSH CO.

524 N. 22ND STREET MILWAUKEE, WIS.

Cylinder Sleeves

(*Continued from page* 52)

section of the sleeve while failing to prevent movement at the lower end, owing to the resilience of the rubber seal ring or gasket. Consequently, it is almost impossible to make a straight or round bore in this manner.

Removal of sleeves is accomplished by means of a puller (see accompanying sketches) or a hydraulic jack or press. Usually wet type sleeves need be forced only about one inch, or until the sleeve breaks loose and clears the seal ring. The sleeve can then be lifted out by hand.

The rubber seal ring should be removed immediately, before it hardens. The ring groove should be thoroughly cleaned, as should the retaining flange and lower end of sleeve-support surfaces and the entire outside diameter of the sleeve.

To facilitate installation, the new seal ring should be coated with white lead or a mixture of heavy soap-suds and glycerin. The sleeve should then be pushed gently into place, care being taken to prevent damaging the rubber ring. In the majority of cases no pushing tool is necessary.

It is finally recommended that the manufacturers' instructions covering sleeve replacement be followed in all cases.

•

Oil Analysis

(*Continued from page* 58)

the following specifications, *after* the above use: Gravity, 27.6, Flash-point, 385; Fire-point, 515; Viscosity at 130° F., 281; Viscosity at 210° F., 71.6; Carbon, 1.19%; Ash, 0.17%; Precipitation, 1.0%; Dilution, 1.2%; Kissling resins, 0.11%; Water, slight trace.

From the above specifications of the used oil, it is obvious that the original viscosity was well maintained; it correlates well with the indicated dilution, gravity, flash and fire-points. The precipitation is low, showing that the circulating dirt was effectively removed from the oil, and that the oil filter on the engine is operating satisfactorily. The Kissling resins are low, showing that there is no oil breakdown or contamination with resinous fuel. The low ash content indicates that wear is low, and that very little abrasive material is present in the oil. Comparison with new oil specifications is not made because the original specifications were either unknown or not available.

However, the oil still seems to be in excellent condition, and the drainage period could probably be extended with safety to 2,000 or 2,500 miles. But before such a step is adopted by the entire fleet, it would be necessary for the laboratory to examine several test drains at 2,500 miles, to make sure that the tendencies exhibited by the first sample of oil prevail throughout the entire fleet. The subsequent laboratory analyses would then give an accurate cross-section of the operation of the entire fleet, so far as oil is concerned.

Should the mileage between drains be extended, it will of course be necessary to pay additional attention to the servicing of air cleaners and oil filters, as these mechanisms operate effectively in keeping circulating dirt and other foreign impurities from the oil. The proper use of such accessories, together with the stability of the oil itself, are the governing factors that will make it safe to operate at longer intervals between drains.

As before pointed out, this sample is an actual case-history. It was followed by a crankcase drainage sample from a similar unit in the same fleet, which seemed to be in somewhat better condition than the first sample. Again the recommendation for an increased drain period—to 2,500 miles —was made.

Still later samples were submitted from the same fleet, after changing over to the 2,500-mile drain period. These came from different units in the fleet and showed that it was entirely feasible to operate throughout the fleet, changing oil at the increased mileage-interval.

It should be pointed out, however, that the above example will by no means be found a "universal" one. As is usually the case in fleet operation, good practice under one set of operating conditions may be entirely wrong under another set of operating conditions, and a consideration of the general characteristics of the used oil can generally be depended upon in the formulation of such an oil-change "yardstick."

It is this correlation of laboratory analyses with service data that enables the experienced petroleum laboratory to really help the fleet operator . . . not only to establish oil-change periods, but also to solve other problems that may occur, in which lubrication is a factor. Perhaps in a later article the author will discuss how used crankcase oil analysis actually discloses faulty operation and/or maintenance conditions, fuel inefficiencies due to factors within the control of the operator, and also the need for reconditioning of certain engine units, in order to bring about satisfactory engine and oil performance.

It is quite obvious that under present conditions and war-time operation, the impossibility of replacing many units, the difficulty and delays in obtaining parts, the transfer of labor to military services and war production plants, have made the entire subject of lubrication—the frequency of crankcase oil change, etc.—a matter of major importance to the fleet operator.

It has also been noted that at conventions of businesses in which fleet operation is an important factor (such as department store, bakery, dairy, etc.), much time and attention has been devoted to discussions of lubrication and maintenance, particularly that of lubrication as a factor in reducing maintenance costs and prolonging the life of equipment. The old adage that "oil is cheaper than machinery" seems to be coming into its own more than it has ever been before, at least in *our* time.

●

Engine Bearings

(*Continued from page* 54)

Construction Features of Undersize Bearings: Materials used for bearing linings (tin and lead-base babbits, cadmium alloys and copper-lead mixtures) are low in certain physical properties and they are therefore used in combination with a higher strength back structure of steel or bronze. Until comparatively recently, the back thickness remained the same for standard size bearings and all associated undersizes. The lining thickness was a variable and changed with the different bearing sizes.

This arrangement made it possible more economically to manufacture relatively small quantities of assorted undersize bearings for replacement along with large quantities of standard size original equipment bearings, since no separation for final size was made prior to the final bore sizing operation. Another important advantage of this construction is availability, since a .060" undersize semi-finished bearing can be bored to standard or any intermediate undersize. Similarly, any undersize bearing can be rebored to standard or smaller undersize.

A late development in engine bearing design has been a rather drastic reduction in bearing lining thickness (to a range of approximately .002" to .010"), primarily to improve bearing mileage. To carry the benefits of this development as far as possible, many undersize bearings are now made with variable back thicknesses so that the lining thickness can be held more closely in accord with the thickness used in the standard shaft size bearing.

For example, certain manufacturers supply .060" undersize bearings with a steel back thickness which will allow machining to a .030" undersize. For undersizes between .030" and standard, a .030" undersize bearing is furnished, which can be machined to standard.

Due to uncertainties in the availability of steel and bronze used for bearing backs, additional variations in

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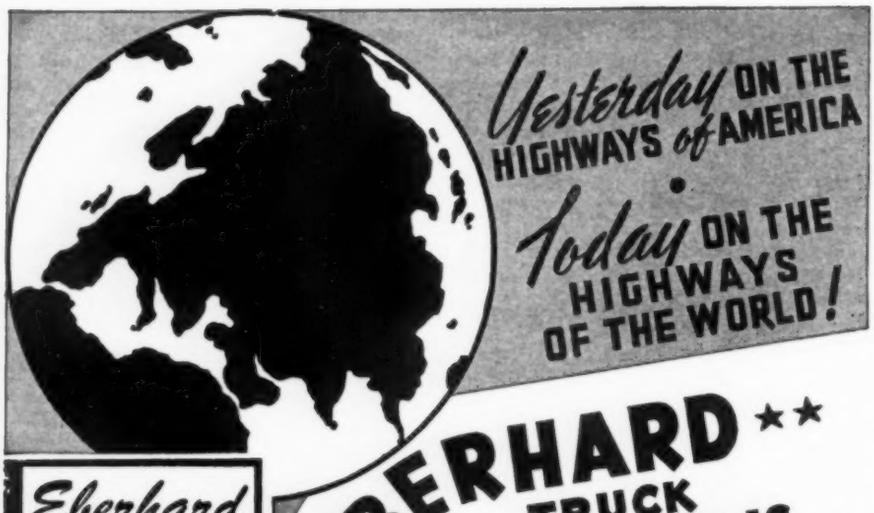

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back thicknesses are not improbable. realizing the hazards of this condition, most replacement bearing manufacturers are packing a suitable notice in bearing cartons stating the minimum undersize or range of undersizes to which the bearing can safely be bored. In some cases this information is rubber-stamped on the bearing back surface, or on the outside of the carton. When any undersize bearing is rebored to another size, it is important to make sure that the desired size can be obtained from the bearing selected.

The use of very thin linings has not been extended to the (Type 2) "removable align bored" bearing and relatively few engine models are currently built with this type of bearing. It can be safely assumed that stock bearings of this type can be bored to standard or any undersize within their rated range.

The lining in direct-babbitted connecting rods and bearing caps is cast in sufficient thickness to bore to any desired size.

Recommended Range: The following is a recommended range of stock replacement bearings of the precision insert (interchangeable) type: Standard, .002" (to lengthen time before first crankshaft regrind), .010", .020", .030" or .040", .060" or .090" semi-finished. These are all *undersizes*, the last-mentioned size being left rough, to enable reboring as required for immediate undersizes.

In certain cases the above undersizes are required with a .005" or .010" *oversize* on the outside diameter. For removable bearings of the type that are to be align-bored, the recommended undersize is .060" or .090".

Bearing Material Substitutes: Copper-lead and cadmium alloy bearings are commonly used in heavy-duty engines where the loads and operating conditions are too severe for conventional tin-base or lead-base babbitts.

Copper, cadmium and tin are obtainable only on high priorities and the availability of these metals for replacement bearings in commercial operations is questionable at this time. The alternative is a lining of lead-base babbitt.

No lead-base babbitt bearing can be expected to show mileage which is equivalent to that of copper-lead or a cadimum alloy bearing in an engine originally built with the heavy-duty bearings. If this substitution is necessary, the operator must expect reduced bearing mileage or he must reduce the severity of his operation.

Lead-base babbitts, as used by the several specialist engine bearing manufacturers, can be expected to show mileage which is superior to that of tin-base babbitt bearings, *providing* the babbitt thickness does not exceed .035". If the babbitt thickness ranges between .035" and .060" the performance of lead-base and tin-base babbitt can be expected to be on a par. If the thickness of a lead-base babbitt is in excess of .060", its performance will probably be inferior to that of tin-base babbitt unless the severity of the operation is reduced.

(*Editor's Note:* The second section of this SAE-ODT Committee Report on Engine Bearings will appear in our next issue. This will be a very lengthy article that will cover every phase of engine bearing service. It will detail correct installation procedure for the various types and will be the most complete work of its kind ever published in any national trade magazine.—*H. C. F.*)

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Legislative Outlook

(*Continued from page* 66)

braska, Nevada, New Hampshire, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, West Virginia, Wisconsin and Wyoming.

The need for preserving reduced highway revenues for post-war purposes is giving added impetus to movements for constitutional amendments (already adopted in 14 states) to require that all special highway-user taxes be dedicated to highway purposes. Legislators are expected to be asked to submit such amendments to the voters in Alabama, Arizona, Arkansas, Connecticut, Delaware, In-

diana, Maine, Maryland, Massachusetts, Montana, Nebraska, New York, Oklahoma, Pennsylvania, Rhode Island, Texas (excepting 1 cent of state gasoline tax now going to schools), Utah, Wisconsin and Wyoming. Highway users are urging reduction of current diversion of highway funds in a number of states.

Threats of increased diversion of highway funds to non-highway purposes are reported from Illinois, New Jersey, Oklahoma and Texas.

Among states in which reductions in the gasoline or other highway-user taxes may be asked are Arkansas, California, Delaware, Michigan, Montana, New York, Oregon, Pennsylvania, South Dakota, and Wisconsin. Indications are that cities and counties will make new demands for state highway revenues in Arkansas, Connecticut, Illinois, New Mexico, Texas and Wisconsin.

Highway Opponents Are Reported Active: Opponents of highway transportation are reported active in many states and reliable information indicates that they may seek to take advantage of the war emergency to promote legislation inimical to highway users, some of which is expected to wear the guise of rubber or vehicle conservation.

Threats of punitive tax increases, attacks on reciprocity and efforts to impose more restrictive sizes and weights regulations come from many sources. Active campaigns for anti-highway transportation legislation are anticipated in Idaho, Iowa, Nevada, New Mexico, Oklahoma, Pennsylvania and Texas.

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Women Maintain Fleets

(*Continued from page* 68)

considerable patience and encouragement from the teacher. It also requires firmness, diplomatic handling and time for men and women to learn to work efficiently together under circumstances to which neither sex is accustomed. The testimony of experienced employers proves that any woman who will ever learn a skilled job, learns it quickly once she has become machine-minded. And during the learning process, skilled male workers are usually most ready to help. Employers in England agree that after the newness has worn off, men and women, except for an incorrigible few who must be cleared out at once, settle down to a steady partnership in work.

"I recall one truck repair shop where 160 women working with twenty men and boys have almost completely overhauled more than 1,000 motor vehicles in the past eighteen months. The fact that they stripped and cleaned engines, overhauled both front and rear axles, bored out cylinders and did many other kinds of jobs in the rejuvenation of motor trucks explodes the notion that women are incapable of fleet maintenance work. The British have learned that by installing lifting devices, breaking down jobs and exercising patience during the learning period, women can be trained to do maintenance work and do it well.

"Whether they are organized or not, the working conditions and wages of women employed to do the jobs of men who were organized are usually governed by Trade Union agreements. The men, for the most part, do not mind women having their jobs, provided the women receive the same pay as the men for the same work and provided the men are guaranteed their old jobs after the war. Both these conditions are customarily included in the Trade Union agreements.

"Though employment of women on a part-time basis was at first opposed vigorously by employers and by many women, a marked difficulty in obtaining other kinds of labor on the one hand and the calling up of more husbands and sons on the other, have rendered both parties more amenable to the idea," Miss Sells reports. "In the beginning it was thought that women could be employed part-time only when the work was simple inspection or involved other duties of

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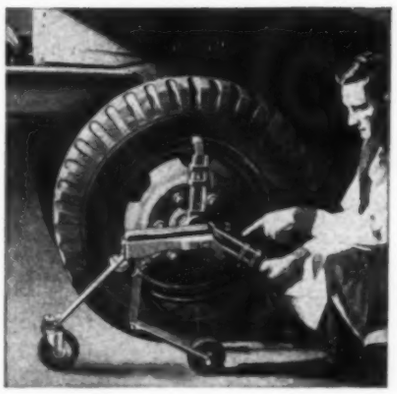

Locate the Causes by Making a "Tracer-Wheel" Check-up!

Of all the misalignments that are hastening truck tires to the scrap heap at the rate of 35,000 per day, none exact such a heavy toll as hidden chassis defects which cause faulty wheel-roll.

If, because of some mechanical defect, the wheels are thrown out of parallel to the straight-ahead course of the vehicle, nothing in the world can prevent the tires from being dragged and scuffed to pieces. No matter how perfectly the wheels may be adjusted as to camber, caster and measured toe-in, the destruction of the tires goes merrily on.

How to detect quickly the hidden chassis defects which spell premature death to tires is the problem of the hour! Fortunately, however, the solution is already at hand! The Micro-Linor, by means of its patented "Tracer-Wheel" which runs alongside of each wheel as it is being tested, puts a finger on chassis defects with an accuracy that is almost unbelievable.

With the tire supply fast dwindling down to nothing, the only way that you can protect yourself against a still further reduction in travel is by keeping your present tires off the scrap heap as long as possible. The Micro-Linor, you will find, is a most valuable aid in this direction.

Micro-Linor Set No. TML-220 fits truck, bus, and passenger car wheels with 24" to 48" tires—also road graders.

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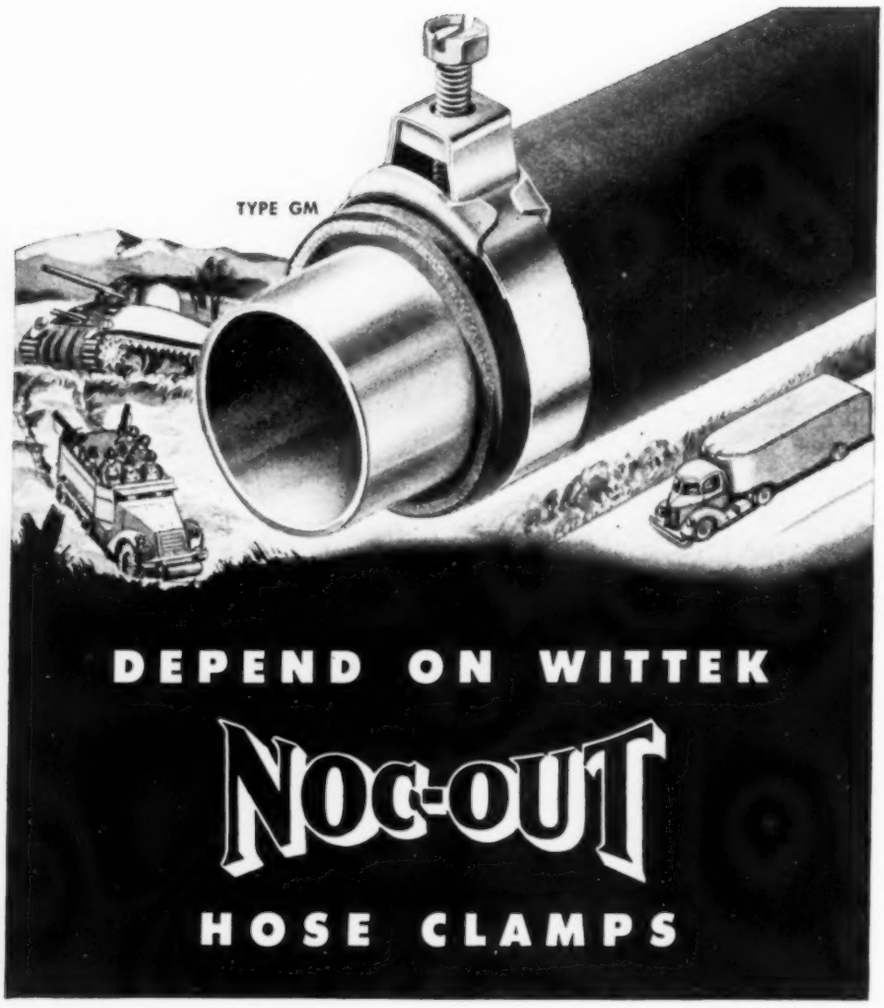

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a routine nature so that the break in continuity would make no difference to the product. Experience has proved, however, that a great many types of work, in fact almost all types, lend themselves to the part-time arrangement, if the workers are employed in pairs and if there is careful supervision. In fact, it has been said that women produce more per hour on part-time than on full time because they do not tire and because they do not worry about when they will do their shopping or housework, or about what is happening to their children. It is much easier to arrange for the care of children when the mother is at home part of the day.

"I believe there is a special technique for dealing with women and getting the most out of them. I am of the opinion that what women do in this war will depend very largely on whether management takes the trouble to discover the particular methods applicable to them. The fact that women work in factories, in shops and on production lines will, I am sure, introduce a human element which, if conserved, can be made of permanent value in post-war industrial life."

S. A. E. War Conference

(*Continued from page* 64)

Use of a 65-octane fuel probably would require somewhat closer maintenance of equipment for satisfactory performance, Mr. Brenz said, the higher-octane fuels apparently having a wider tolerance. The controlled tests were said to reveal average allowable timing of one and one-half degrees spark advance from standard, four and one-half degrees retard, and nine degrees retard for trace knock operation with gasoline of 77, 70.5, and 66 ASTM octane numbers, respectively.

Performance of commercial engines appears to differ from that of passenger cars in that a light knock will increase to preignition conditions under prolonged full throttle operation, and that the use of fuels having octane ratings above the octane requirement of the engine may give no improvement in performance. Mr. Brenz reported that, on the basis of these tests, no major engine changes, such as changes in compression ratios, are necessary unless fuels of lower than 65-octane are used.

It was recommended that in the future heavy-duty commercial vehicles be included in all engine-fuel surveys.

Heavier Oils for Less Wear: Wear on cylinder walls and rings in well-lubricated engines was said to decrease progressively with increasing viscosity of the lubricating oils. This was revealed in a report by H. A. Everett, head of the Department of Mechanical Engineering at Pennsylvania State College, State College, Pa., who explained that the results were determined by operating engines over eight-hour periods and weighing the iron content of the residual oil in an effort to ascertain the influence of viscosity alone upon wear.

The amount of wear was said to be almost inversely proportional to the kinematic viscosity of the oil, and the findings to be in harmony with current understanding of fluid film lubrication, film thickness for a given loading being regarded as nearly proportional to the kinematic viscosity and wear as an inverse function of the film thickness.

Six single-cylinder engines were operated under conditions artificially controlled to stimulate road operation of passenger-car engines. The oils, blends of Pennsylvania bright stocks and neutrals, ranged in viscosity from below SAE 10 to above SAE 70. Engines were operated under full throttle at a constant speed of 1,800 r.p.m. for eight hours, with constant crankcase temperatures of 230°F and cylinder-head temperatures of 450°F.

In determining the amount of iron left in the residual oil, 10-gram samples were burned to a residual ash, which was dissolved in hydrochloric acid, diluted, and treated with ammonium sulphocyanide. The resulting red solution was matched colorimet-

rically with other solutions of predetermined iron content and the iron content then was adjusted to allow for oil consumption, leakage, and samples, so that a value could be determined for "total iron wear."

Mr. Everett said the character of the wear curve, decreasing with increasing viscosity, is definite but probably underestimates the simple viscosity influence because of the collateral effect of viscosity upon oil consumption. With the lighter oils, make-up oil was added more frequently and the iron contamination of the residual oil naturally was smaller. All wears reported were said to be slight, with no scuffing or abrasion evident, and with internal surfaces all comparable to cylinder interiors usually encountered in well-maintained engines.

"Nevertheless," reported Mr. Everett, "it is evident that the lower the viscosity the higher the wear, even though the maximum reported may be well within the limit considered acceptable for good service."

Engine Bearing Substitutes: Japanese forces may hold the world's active tin supply in the Dutch East Indies, but the engines in the motorized equipment of the United Nations will keep operating through the use of substitute materials which are giving satisfactory service as engine bearing alloys. The story of the development of such substitutes was told by L. M. Tichvinsky, senior mechanical engineer, U. S. Naval Engineering Experiment Station, Annapolis, Md.

The dramatic was not apparent in this story of research, but its successful conclusion means that engines in motorized military equipment will keep running despite the shortage of tin for bearing alloys. Eight bearing materials were tested: tin-base, lead-base, arsenic lead-base, and silver lead-base babbits, alkali-hardened lead, cadmium-silver, cadmium-nickel, and copper-lead alloys. The test confirmed the high corrosion-resistance of tin-base babbit, revealed the low-corrosive properties of lead-base babbits containing arsenic or silver, indicated that bearing alloys tend to corrode at high oil temperatures and that adequate cooling is necessary to impede oxidation of the oil. Further, the tests showed that additives, if used, must be carefully selected to reduce the corrosiveness of the oil, and that in bearings designed for heavy-duty, fatigue strength, compression, hardness at high temperature, and heat conductivity of bearing materials all must be considered.

Supercharged Diesels: The current hope for increased output of Diesel engines was reported to lie in the use of supercharging, which is already widely applied to aircraft engines.

The problem of adapting supercharging to diesel engines was discussed at a special session attended by Army officers and automotive engineers, who heard a detailed description of a supercharger developed in Sweden and now being applied to American engines. The device was explained in a paper prepared by Alf Lysolm, of Aktiebologet Ljungstrom, Augturbin, Sweden; and Ronald B. Smith and W. A. Wilson, both of the Elliott Co., Jeanette, Pa., and presented by Mr. Smith.

Explaining that experiments and use have demonstrated the advantages of superchargers of the mechanically-driven, positive-displacement compressor type, Mr. Smith said the Elliott-Lysolm is built with helically lobed rotors which interact to provide both interaxial and cross seals, thereby combining the desirable characteristics achieved by internal compression with high rotating speed, simplicity, and freedom from rubbing contact. Mr. Smith reported that a supercharger handling 400 to 500 cubic feet per minute weighs only 80 pounds and has shown an adiabatic efficiency of 72 per cent. The device can be built in sizes adequate to serve the largest diesel engines, and will operate satisfactorily in high-pressure supercharging service.

Altitude Decreases Octane Requirement: The finding that altitude has the effect of lowering the octane-number requirement of fuels used in automotive engines was reported by Donald

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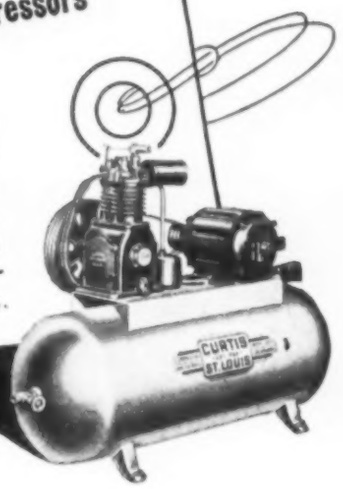
Today, as never before, it's important for you to take the best possible care of your own service equipment. Your cars or trucks *must* be kept running for the duration and compressed air is an important part of proper maintenance. Here are some valuable tips that will enable you to further extend the normally long life of Curtis Air Compressors.



CHECK INSTALLATION — Compressor should be in clean, dry, level, accessible, and well-ventilated place. Check to see if compressor and motor operate at recommended speed and in right direction. See that specifications of motor and connections agree with current and voltage available.

LUBRICATION — Maintain proper oil level and use recommended grade of oil. Keep oil off belts and other unlubricated parts. Drain and refill crankcase at least every 3 months.

TESTING — If air supply or pressure decreases, test all outlets, joints, and valves for leaks — using soapy water and brush. Periodically inspect check valves, safety valves, or valves in head of compressor. If they leak, remove and clean — oil them so as to work freely.

SERVICING — Drain moisture from air tank at least weekly, preferably every day. When replacing head gasket, secure proper grade of material from manufacturer — do not use paper or soft rubber.

ELECTRICAL — Keep motor dry. Don't connect motor to light wiring — run proper size wiring direct from meter. Disconnect automatic units at night unless in use.

Proper fusing prevents burnt-out motors. Don't over-fuse. Don't use jumpers. Thermal cutouts are recommended for any motor, but should always be used with 2 or 3 phase motors to prevent single phasing.

KEEP CLEAN — Wipe your compressor unit off at frequent, regular intervals. Set a time each week for this important service.

CURTIS PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Company
1993 Kienlen Avenue, St. Louis, Missouri

available for
IMMEDIATE DELIVERY

OPACO SAFETY-FILL NOZZLE
Patents Pending

SAVES { GAS TIME MONEY

by shutting off automatically when tank is filled

FLEET OPERATORS can NOW get "Safety-Fill" Nozzles. Prevent spilling and wasting of gasoline . . . speed up servicing by equipping your pumps with "Safety-Fill" Nozzles.

SHUTS OFF AUTOMATICALLY when gas in the tank reaches the tip of the nozzle. This eliminates overflowing and wasting gasoline.

REDUCES FIRE HAZARD — Gasoline spilled on or around a truck endangers equipment which can't be replaced. "Safety-Fills" avoid this danger.

FASTER SERVICE — Gas tank can be filled at maximum speed. This is a big time saver during rush periods.

NO PEEK! NO LISTEN! NO GUESS! Ideal for servicing at night and in noisy garages and terminals.

"Safety-Fill" Nozzles will soon pay for themselves. Fleet operators such as Borden Company, Yellow Cab, Checker Cab, A & P and N. J. Bell Telephone use "Safety-Fills." Write for FREE Bulletin and latest prices! Use convenient coupon at left.

Fill in - Tear out - Mail Today!

OPACO DIVISION,
AMERICAN MACHINE and METALS, Inc.
East Moline, Illinois

Please send me FREE Bulletin and latest prices on OPACO Safety-Fill NOZZLES.

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OPACO
DIVISION
AMERICAN MACHINE AND METALS, INC.
EAST MOLINE, ILLINOIS

D. Brooks, of the National Bureau of Standards, Washington, D. C. It was based upon the results of tests made at the Bureau and compared with actual performance tests made during the 1936 and 1937 CFR Motor Surveys.

The tests were conducted in an altitude chamber simulating altitudes up to 8,000 feet in all cases, and as high as 20,000 feet in special tests. Results then were compared with ASTM and CFR reports. From these data was derived a family of equations which permitted relating octane number requirement to air pressure.

It was found that an engine which required 70-octane gasoline at sea level, needed fuel of 30-35 octane at 8,000 feet. Both altitude chamber and road tests indicated that for this engine, the change in octane requirements was about three and one-half octane units for each one inch Hg change of air pressure.

Mechanic Training Programs: Organized instruction by competent teachers in the classroom and on the job was recommended as a method of teaching mechanical crafts better adapted to the modern age of progress than the apprentice system. Trouble with the old system, in which youths spent years at low pay trying to acquire the knowledge and skill of a master craftsman, was reported to be the failure of the craftsman to keep pace with the technical progress and developments in his own craft.

This recommendation was made by Floyd Patras, of Southwestern Greyhound lines, Dallas, Texas, who said it has become apparent that the old apprentice system must be at least supplemented by classroom and job instruction under competent teachers, adding that:

"The present very rapid technical advance in automotive design makes imperative a comprehensive plan for training automotive mechanics, both for the winning of the war and for the rehabilitation and maintenance of automotive equipment after the war."

It was reported that the SAE committee has developed a tentative training program in which repair operations for the average motor vehicle are classified as approximately 75 type jobs. The would-be mechanic is trained to diagnose trouble, to make adjustments and repairs necessary for proper and safe operation of a motor vehicle, to perform such adjustments and repairs without supervision, and to possess such knowledge and experience of all phases of automotive work as will insure satisfactory vehicle operation when the work is finished.

Army Seeks Industry's Help: America's automotive industry was complimented on a remarkable achievement in supplying the armed forces with motorized equipment, and was asked to further aid the Army in developing maintenance methods. The request came from Brigadier-General James Kirk, Ordnance Department Chief of Motor Vehicle Maintenance, who explained that with the Army becoming the largest motor vehicle fleet operator in the world, the maintenance problem is one that can make or break us in this war of machines.

General Kirk declared proper maintenance of its vehicles would make the Army more efficient and mobile, save equipment, lives, and costs, and conserve materials from which additional armament and equipment might be built. Important savings would come also in shipping space, he added, so that more troops and supplies could be moved abroad.

Specifically, General Kirk called for these aids to maintenance of the Army's motorized equipment:

1. Standardized training of service mechanics.

2. Standardized maintenance tools and methods.

3. Standardized parts nomenclature, lists, and numbers.

4. Adequate manufacture of parts.

5. Organization of the automotive industry for service to the armed forces.

6. Better industry understanding of service echelons.

7. Accessibility of parts in all vehicles.

8. Elimination of "bugs" as soon as discovered.

Private Carriers Hold War Conference

A WAR Conference was held in New York last month by the National Council of Private Motor Truck Owners, Inc., attended by aproximately 150 leading fleet operators from various sections of the country.

A group of top-flight government officials, from Joseph B. Eastman down, were on hand to address the meetings and to answer the many questions advanced on such things as ODT Order No. 21, Tire Rationing, Gasoline Rationing, Manpower Problems, State Legislation and others.

The highlight of the conference was the address of ODT's Joseph B. Eastman, who "let down his hair" and explained the why and the how of Order No. 21, assuring those in attendance that it would *not* be discarded, and promising a possible elimination of much of the paper work it entails, as well as a determined effort to provide sufficient replacements to keep vehicles rolling and possibly the release of additional new trucks. . . . ODT Director John L. Rogers was another of those who addressed the convening operators.

The "round-table" discussions were particularly interesting, and those among government officials who were "put on the spot" included W. J. Cumming, Chief of ODT's Vehicle Maintenance Section; H. Richard Stickel, ODT Division of Motor Transport; James O. Riley, Chief of ODT's Inventory Section; Otto S. Beyer, Director of ODT Division of Transport Personnel; Edmund M. Brady, ODT Division of Motor Transport; Charles F. Phillips, OPA Rationing Chief, and others.

Headquarters of the National Council of Private Motor Truck Owners is in the National Press Building, Washington, D. C. If you are not as yet a member of this very worth-while organization, this Editor believes that you are missing something. Membership is open to private carriers, regardless of the number of trucks operated.

●

Buses Save 14½ Million Tire Miles Monthly

THE ODT regulations governing inter-city bus operations are saving more than 14½ million tire miles a month, according to ODT officials, the tire miles being computed on the basis of six tires to a bus.

A total reduction of nearly 2½ million bus schedule miles monthly has been achieved through the application of General ODT Order No. 11 and 34 special orders, the ODT estimated.

In addition to a saving in rubber, these reductions in bus mileage are also resulting in a substantial saving in equipment and replacement parts, the ODT said.

●

"There's No Ceiling on Effort!"

WHEN the Fruehauf Trailer Company recently held a contest among its employees for a slogan which would epitomize the company's war effort, all plants of this company throughout the nation were asked to participate.

First honors went to Don Burt of the Fruehauf Fort Wayne plant. His winning slogan is worthy not only of the best efforts of the Fruehauf company but could be readily adopted by every man, woman and child in the U. S. A. Like all good slogans, it's short and forceful. It reads—*"There's No Ceiling on Effort!"*

"I'm the Brunner Air Compressor in your repair shop.

"When you took me on, I said I was looking for a *steady* job ... with no vacations!

"Yes... you *have* given me the big responsibility of supplying a dependable flow of air to keep precious tires properly inflated. And, believe me, I appreciate being entrusted with that all-important job.

"But there's lots of *other* work I can be doing to help you conserve your trucks, keep 'em on the road doing their bit for the country's vital transportation system. And don't forget I can help keep those wheels turning *at low cost per ton-mile,* too!

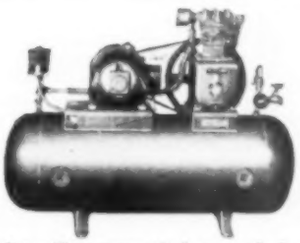
"How about using air for drying cleaned parts in the shop? For operating washing guns? For spraying springs? For grease guns? Pneumatic hoists? Paint sprayers? Boss... maybe you haven't found it out *yet,* but your Brunner Compressor can help you out on more jobs than you ever thought possible!

"May I suggest you write to the Brunner people? Now... *today!* Tell 'em our set-up here... our problems. I *know* you'll get a quick answer.

"In the meantime, Boss... look around the shop, spot some places where a steady flow of air will help you do your job better... and turn me loose! *I crave action!*"

Join the U.S. TRUCK CONSERVATION CORPS

BRUNNER MANUFACTURING CO., UTICA, N. Y., U. S. A.



BRUNNER H-621—Two stage 1½ h.p. outfit for delivering high pressure air, 150-200 lbs. Completely assembled, fully automatic.

ARMY E NAVY

BRUNNER

COMPRESSORS

Demand these labels when buying uniforms
ARMY TWILL of REEVES SANFORIZED* MADE TO GOVERNMENT SPECIFICATIONS
REEVES Glengarrie POPLIN
UNIFORMS OF REEVES ARMY TWILL SCORE A HIT!
In our "all out" war effort, long-wearing, serviceable uniforms help to maintain transportation efficiency. So specify Reeves famous fabrics for your next uniforms.
REEVES ARMY TWILL meets exacting U. S. Government Tests for better wear, longer life, and color-fastness. Its fabric vitality keeps it "in shape" under trying conditions.
Specify GLENGARRIE POPLIN for matching shirts. It's a durable, stylish fabric in a wide range of colors. Both fabrics Sanforized* against shrinking.
*Fabric shrinkage not more than 1% (U.S. Government Test CCC-T-191-a)
See your nearest dealer for uniforms, sport and work clothes made from these famous fabrics, or write for colorful leaflet to:
OVER 600 million yards of Reeves Army Twill sold to the U. S. Army
REEVES BROTHERS, INC.
54 WORTH STREET
NEW YORK CITY

Need Priority for Air Compressors

ON page 84 of our January issue, a description of Gilbert & Barker air compressors carried the statement that these could be purchased without priority ratings. . . . It is now disclosed that a preference rating of A-1-c (or better) is required before orders for compressors of this type can be filled. . . . Limitation Order L-123 includes all compressors of more than 1 cu. ft. and less than 50 cu. ft. displacement. . . . If you need a compressor (any make) you can seek priority assistance under the preference rating order applicable to your particular industry (if any); you may also appeal if your need for an air compressor incurs an "unreasonable hardship". . . . Address War Production Board, Washington, D. C., and refer to L-123.

•

Tyson Bearing Gets Army-Navy "E"

TYSON Bearing Corporation has been awarded the Army-Navy "E" for outstanding production of war materials. . . . Tyson manufactures tapered roller bearings for Army and Navy guns, automotive, farm equipment and industrial uses, as well as precision parts for more than half of America's warplane engines. . . . The award was made by Capt. Robert Henderson, Navy, and Major R. H. Coburn, Army. . . . It was received by Ralph Maxson, president of Tyson Bearing Corporation, and Joseph Schmidt, oldest employee.

Filling Station Hours Limited

THE P.A.W. Administrator (Mr. Ickes) has recently issued an order limiting hours of operation of most of the nation's service stations to 12 hours a day. . . . Under the order, filling stations must elect to operate not more than 12 hours a day, or they must stay open 24 hours a day, seven days a week. . . . It was explained that the 24-hour-a-day alternative will permit stations to serve commercial vehicles.

•

Banta (Sealed Power) Passes Away

THE death of Wm. Orwin Banta, sales manager of the replacement service division of Sealed Power Corporation, Muskegon, Mich., is announced with deep regret by company officials. . . . Mr. Banta was 58 years old and had been with the firm since 1935. . . . He had previously been with Central Steel & Wire Company, Spencer-Smith Machine Company, and had also been engaged in the automotive jobbing business in Indianapolis, Ind.

•

Definition of "Essential" Auto Use

ESSENTIAL uses of the family car include shopping and taking Junior to the dentist. . . . A witness before a Senate Committee quoted Rubber Director William M. Jeffers as the author of this definition and Mr. Jeffers, who was present at the time, did not contradict the statement.

Amer. Hammered Gets Army-Navy "E"

SAID to be the first piston ring firm to get this award, the American Hammered Piston Ring Division, Baltimore, Md., was recently awarded the Army-Navy "E" flag in a ceremony at its Baltimore plant. . . . Vice-president A. W. Morton accepted the pennant for the organization. . . . It was presented by Rear Admiral Ernest M. Pace, Jr. . . . Col. Richard N. Atwell, of Army Ordnance, presented the individual lapel "E" pins to a committee representing several thousand American Hammered workers.

•

Auto-Lite Battery Corp. Succeeds USL

THE NAME of the USL Battery Corporation, Niagara Falls, N. Y., has recently been changed to "Auto-Lite Battery Corporation". . . .Auto-Lite batteries are now manufactured in conveniently-located plants at Niagara Falls, Indianapolis, Atlanta, Oklahoma City, and Toronto, Canada. . . . Factories are also operated in England and Brazil.

•

Mac Short is New S.A.E. President

MAC SHORT was elected as the 38th president of the S.A.E., succeeding A. W. Herrington of Marmon-Herrington Company. . . . Mr. Short's vocation is aeronautical engineering, designing and flying planes. . . . He became a member of the S.A.E. in 1925 and has served as national vice-president for aircraft engineering; also as chairman of the Southern California S.A.E. Section. . . . He was a flying lieutenant in World War I.

•

Calder Succeeds Kanzler on WPB

THE WPB, through Donald Nelson, chairman, announces appointment of Curtis E. Calder as Director General for Operations, to succeed Ernest Kanzler, who resigned recently because of ill health. . . . Mr. Calder is a business executive of wide experience, principally in public utility and financial operations.

•

Heil Announces Plant Personnel Changes

THE HEIL Company, Milwaukee, Wis., announces two changes in plant personnel. . . . Herman C. Frentzel, chief engineer, has been appointed works manager. . . . Charles G. Eisenberg has been promoted from chief engineer of the Body & Hoist Division, to chief inspector. . . . Both gentlemen have been with the Heil organization for many years.

•

South Carolina Registrations Slump

THE CLOSE of the first annual motor vehicle registration period under gasoline rationing in South Carolina showed a loss of 23,570 registrations. . . . When the 1940-1941 license year ended October 31, 1941, there were 376,154 vehicles registered in that State while net registrations for the year 1941-1942, ending October 31, 1942, amounted to 352,584.

Huge Transport Merger Is Now Completed

THE consolidation of seven large Eastern motor carriers into Associated Transport, Inc., was completed recently when Consolidated Motor Lines, Inc., Hartford, Conn.; McCarthy Freight System, Inc., Taunton, Mass.; and M. Moran Transportation Lines, Inc., Buffalo, N. Y., ceased operating under those names and became an integral part of Associated Transport, Inc.

The Southern carriers whose operations have already been consolidated are Barnwell Brothers, Inc., Burlington, N. C.; Horton Motor Lines, Inc., Charlotte, N. C.; Southeastern Motor Lines, Inc., Bristol, Va.; and Transportation, Inc., Atlanta, Ga.

With this concluding phase of the consolidation, Associated Transport, Inc., now operates 3,500 vehicles over 24,000 miles of unduplicated route extending from the Canadian border to the Gulf of Mexico, and west to Cleveland, Pittsburgh, Nashville and New Orleans. Connecting carriers serve points as far west as Chicago and St. Louis.

The formation of Associated Transport is expected to speed shipments by obviating the need for frequent transfer of freight. Coordination rather than duplication of pick-up and delivery in areas previously served by more than one of the constituent companies, will improve service and conserve rubber, gas and vehicles. Already the load factor (percentage of capacity loading) is being raised, with proportionate savings of gas and tires. Conservation education, preventive maintenance and parts salvaging also will help to "keep 'em rolling."

Associated Transport employs 5,742 workers in its executive offices in New York, its two divisional offices in Hartford, Conn., and Charlotte, N. C., its 89 terminals and its factory, maintenance and repair shops.

The officers of Associated Transport are Herman D. Horton, Chairman of the Board; Burge M. Seymour, President; Everett J. Arbour, Robert W. Barnwell, and John J. McCarthy, Vice Presidents; Alexis P. Scott, Treasurer; John A. Sutton, Controller, and Alex W. Chisholm, Secretary.

●

To Teach Civilian Defense Driving

THE New York State Office of War Training Programs has concluded six Instructor-Training Institutes at Albany, Rochester, Syracuse, Utica, Buffalo and New York City, at which instructors from surrounding counties were schooled in presenting material in the Civilian Defense Drivers Corps. These instructors will teach volunteer civilian defense drivers in local communities.

Many driver units have been organized during the past few months and there are at least 40 new units formed as the result of Training Institutes concluded recently.

Driver-training instruction under this plan is being implemented by the Examiners' Division of the State Motor Vehicle Bureau, State Police, graduates of War Department schools, including Chemical Warfare Schools, civilians with specialized training and teachers from vocational and technical schools.

An Instructor's Manual for defense driving units has been published containing background material for defense driving courses. Each course is designed to emphasize safe driving and conservation of equipment and to prepare drivers for the operation of vehicles under varying war-time conditions.

"The Brake People"

MILEY

BE PREPARED!

Every emergency repair is doubly important in 1943. Every minute saved is real support to our battle lines.

Keep on hand a small stock of MILEY parts, Ready Lined Brake Shoes and Rebuilt Brake Cylinders. Factory precision assures a speedy, labor-having change on every wheel you pull. Use MILEY Exchange Service at your Miley jobbers to exchange old shoes and cylinders and replace your stock.

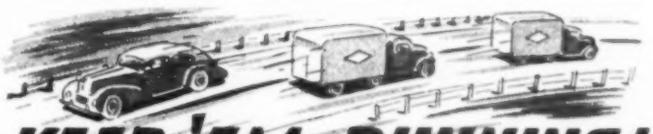
You can still get MILEY Woven Brake Lining—Restrictions do not apply to trucks.

Now ready—Our new Brake Cylinder Chart with complete information on brake assemblies. Ask about it.

SAFETY FIRST BRAKE SERVICE WITH MILEY BRAKE PRODUCTS

L. J. MILEY CO.

1056 W. Adams Street Chicago, U. S. A.



KEEP 'EM RUNNING!

AIR-GO Motor Tonic will help do it. It's concentrated lubricant containing excellent cleanup properties—strictly a petroleum product, NOT a chemical. Harmless to metal—a preserver of metal.

A Petroleum Product

Its use reduces friction 32 to 50%; reduces metal wear up to 90%; reduces repair bills and operating costs; frees sticky valves, pistons, and rings; easier starting in cold weather.

Use with every oil change—for best results.

AIR-GO Motor Tonic combines perfectly with any mineral lubricant regardless of its base, and can be used successfully with oils containing other additives. AIR-GO Motor Tonic will give the motor oil the needed additional oiliness or lubricating qualities. Oil alone is not enough. To reduce friction to a minimum something must be added to increase its oiliness. AIR-GO Motor Tonic makes all moving parts in the engine slide easier. Available in convenient sizes. If your jobber does not have it, write

ALLEGANY OIL CO. CHICAGO, ILL. OIL CITY, PENNA.

AIR-GO Motor Tonic

RBC

ROLLER BEARINGS

Increase Efficiency of our War Industry's

Machine Tools

ROLLER BEARING COMPANY of AMERICA

28 Whitehead Road Trenton, N. J.

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GASKETS

GREASE RETAINERS

OIL SEALS

GASKET PACKING MATERIALS

Gasket Craftsmen Since 1906

• FITZGERALD BULLDOG, METAL-FLEX GASKETS FOR HEAVY-DUTY WORK—LAST LONGER—REDUCE OPERATING COSTS

Order Through Your Nearest FITZGERALD Jobber, or write us for complete information.

The FITZGERALD MANUFACTURING CO.
TORRINGTON, CONN.

Branches: Los Angeles and Chicago;
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FITZGERALD GASKETS

THE COMPLETE LINE THAT COMPLETELY SATISFIES

Chicago Coal Dealers in Joint Action Plan

APPROVAL of a joint-action plan which will pare an estimated 135,000 truck miles annually off the delivery operations of 17 retail coal dealers in Chicago, through cooperative use of truck and yard facilities, was announced recently by ODT.

Approval of the Chicago plan—first to be sanctioned in the retail coal industry—is expected to pave the way for similar joint action plans in other cities. It contains these main provisions:

1. Members may deliver coal from each other's yards and use each other's yard services and trucks for the purpose of reducing cross-hauling.

2. Any member whose truck leaves his own yard with a full load for delivery to a customer, may purchase coal for succeeding deliveries that day from the yards of the nearest member dealers.

3. Any member of the plan may draw up an invoice for an order of coal and have the coal delivered by another member from the latter's yard on the first member's invoice, when such action will result in mileage saving.

4. If a truck is returning empty to its own yard, it may pick up a load at the yard of another member dealer and deliver it en route for any member of the plan.

5. Specific charges which can be assessed by a member to another member for services rendered are provided for in the approved plan.

Because of its provisions for the reduction of cross-hauling and empty truck mileage, the Chicago plan approaches the maximum in truck and tire conservation, the ODT said.

•

I.C.C. Urges Sufficient Truck Materials

THE I.C.C. in its annual report to Congress warns that "unless there can be allocations of sufficient material to the transportation agencies to permit them to maintain, renew and operate their plants so that they may continue their present standards of service, more restrictive government control of the use of transportation services will necessarily follow."

The Commission emphasized that the success, so far, of transportation agencies in meeting demands upon them has been largely as the result of maintenance of their physical plant and equipment in good condition in the period immediately prior to this country's entrance into the war. Shortage of rubber and other critical materials and rationing of gasoline have intensified the problems of motor carriers, the I.C.C. said.

The Commission reported that since 1940, motor carriers of passengers have experienced a large increase in net earnings. Motor carriers of freight also gained markedly from 1940 through 1941, but in the first quarter of 1942, their net earnings declined nearly 35% from the similar quarter of 1941.

•

More Trouble in Store for Auto Dealers?

EARLY in 1942 predictions were made that restrictions on the sale of motor vehicles, parts and tires would sound the death-knell of the retail automobile industry in this country but the dawn of 1943 revealed that four out of five automobile dealers had weathered the storm.

Congress came to the dealers' assistance with the passage of the Murray-Patman Acts introduced by Senator Murray of Montana and Representative Pat-

man of Texas. The first of these measures authorized the Reconstruction Finance Corporation to advance loans on or purchase "frozen" motor vehicles in dealers' stocks. The second bill lifted the price ceiling on 4-door sedans to be purchased by the Army, Navy and other Government agencies from $925 to $1,500.

Among the most acute problems remaining to harass dealers is the growing shortage of automobile mechanics. During 1942 repair work helped many a dealer to keep his doors open but with Selective Service and war industries absorbing so many mechanics, it is difficult for many dealers to continue profitable operations.

So serious is the shortage of mechanics and available parts that many informed people believe that the maintenance problem may become more critical than the rubber shortage in the near future.

●

Highway Restrictions Hit Treasury, Too!

UNCLE SAM'S Treasury is beginning to feel the impact of war-time restrictions of motor vehicle sales and use. Latest Internal Revenue Department figures show the following comparisons of September automotive taxes in 1942, with 1941:

	1942	1941
Automobile trucks ..... $	484,511	$ 852,828
Automobiles and motorcycles	338,420	5,002,003
Automobile parts and accessories	1,460,229	1,417,599
Tires and inner tubes.....	953,491	3,241,553
Lubricating oils	2,933,417	3,576,516
Gasoline	29,204,878	33,854.755

●

How to Purchase Two New Tires

REPRESENTATIVE Albert J. Engel, (R., Mich.) reports "as almost unbelievable" the tire-purchasing experience of one of his constituents, W. H. Wilcox of Muskegon, Michigan.

Obtaining a permit to buy two tires and four tubes, Mr. Wilcox set out to make the purchase, described in the following words of Mr. Engel:

"He paid $16.25 for each of the two tires and $3.65 for each of the four tubes, making a total of $47.10 for the two tires and four tubes. Before he was permitted to purchase these tires and tubes, he had to turn in his two old tires and four old tubes which were worn out.

"Before he could turn in the two old tires and four old tubes he had to pay $2.36 each for returning the two old tires and 58 cents each for returning the old tubes, making a total of $7.04 he had to pay under what was termed 'tire return cost.' This brought his bill to $54.14.

"Michigan has a 3-percent State sales tax. He not only had to pay 3-percent sales tax on the $47.10 that he paid for the new tires and tubes but he had to pay a 3-percent transportation tax on the $7.04 paid for returning the old tires and old tubes. He was given no allowance for the old tires and tubes in a trade-in, as they were worn out. This brought his bill up to $55.76.

"Then he paid further an excise tax of $1.03 each on the tires and 24 cents each on the tubes, making a total tire excise tax of $3.02, bringing the total cost of tires to $58.78. In other words, the sales price of the tires was $47.10 and they actually cost him $58.78."

Built for
LONG RANGE SERVICE
AIRTEX DIAPHRAGMS GUARANTEED 50,000 MILES
"IT'S A HIT!" Says "AIRY" Tex
AIRTEX
Precision Made
FUEL PUMPS
3-WAY SERVICE
for prompt, profitable handling of fuel pump business.
1. Diaphragm Kits for minor repairs.
2. Repair Kits for emergency repairs.
3. Complete Exchange Service that gives you factory rebuilt pumps—with the AIRTEX 50,000 Mile Guaranteed Diaphragm—at a low exchange price.
Complete stock of new AIRTEX Fuel Pumps still available for all cars and trucks.
The long range service of Uncle Sam's coast defense guns is not the only service that keeps the enemy away from our shores. AIRTEX Fuel Pumps are doing their share by making the limited gasoline supply stretch for untold extra miles of long range service.
Give your customers the many advantages of AIRTEX 3-WAY SERVICE.
Write your Jobber for the profitable AIRTEX dealer deal. Remember . . . Your profits climb with the AIRTEX line.
AIRTEX AUTOMOTIVE CORPORATION FAIRFIELD, ILL.

"There's silver in them thar Cole-Hersee Switches"
Improved Heavy Duty Switches
ELECTRICAL AUTOMOTIVE and AVIATION EQUIPMENT
Silver Inlaid Contact Rivets and Silver Faced Heavy Bronze Current Carrying Members; Guarantees Switch Will Not Overheat or Burn. Heavy Canvas Reinforced Bakelite Insulating Members. Independent Click Action.
No. 5027
Large plastic screw-on knob, regularly furnished in black (ivory or tan as specified); ½" diameter mounting stem, 1¼" long.
No. 5015
Metal chrome finish knob of improved well gripping design integral with the switch; ½" diameter mounting stem, 1¼" long.
IMPROVED TRAILER CONNECTOR
Note:- Conserve labor and materials. We sell the interior electrical parts separately.
See listing in latest Cole-Hersee Catalog, page 25
Cole-Hersee Company
54 OLD COLONY AVE. BOSTON, MASS

KING

Our Plant is working to capacity on "KING" Testing Equipment for the Government, and we regret that we cannot give our customary good service. However, we can ship most orders with the required priority rating.

THE ELECTRIC HEAT CONTROL CO.
9121 INMAN AVENUE · CLEVELAND, OHIO

An OUNCE of "Balancing" Saves POUNDS of Rubber!

Help Save 108,000 Tons of Rubber!

It has been estimated that if all cars and trucks had their wheels balanced, it would save 108,000 tons of rubber a year besides reducing ruinous wear on mechanical parts caused by excessive vibration, which greatly affects the factor of safety. Remedy these conditions by balacing your wheels with L & H Balancing Weights. They fit any and all styles of both rims and rings.

HARLEY C. LONEY CO.
16873 Wyoming,
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Write for Catalog

L&H Wheel Balancing Weights

Travelers Prefer this Hotel in Milwaukee

Right in the heart of the city, close to everything! 450 fine rooms with superior comfort. Friendly hospitality that travelers like. Coffee Shop and Cocktail Lounge. Garage and convenient Parking Lot. Excellence without extravagance.

From 2.75 with Bath
From 1.65 without Bath

•

LEWIS S. THOMAS
Manager

HOTEL Wisconsin

THE ALMETAL UNIVERSAL JOINT

Since 1921 ALMETAL Universal Joints have been preferred for replacement in thousands of repair shops. They can be lubricated without disassembling. Ask for ALMETAL Universal Joints.

THE ALMETAL UNIVERSAL JOINT CO.
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Household Carriers in Joint Action Plan

IN A MOVE to encourage truck conservation through greater use of existing equipment, the ODT recently approved plans for a traffic clearing house submitted by eleven common carriers of household goods located in Connecticut. The clearing house will be established at New Haven, Conn., and will exchange information about available shipments and trucks of the members.

Any common motor carrier, "duly authorized or permitted to haul household goods and having suitable equipment and facilities," may apply in writing to the ODT Division of Motor Transport, Office of Defense Transportation, Washington, D. C., for authorization to participate in the functions of the New Haven clearing house, the ODT said.

•

Night Markings for Blacked-Out Highways

URBAN and rural highways can be marked so that essential vehicles equipped with approved blackout lighting systems may be operated during blackouts with comparative safety at speeds up to at least 20 miles per hour, according to findings of a study on *"Highway Signs and Markings for Blackout Conditions"*, conducted by the Division of Traffic and Safety, Ohio Department of Highways and the Division of Highway Transport, United States Public Roads Administration.

Markings used during normal illumination are of less value under blackout conditions and signs, to be effective, must either be illuminated or reflectorized and mounted close to the roadway with the top of their 6-inch legends not more than 18 inches above the road surface, according to this report.

Other important findings of the study include:

1. Interior-illuminated signs are the most effective type and must be used whenever a legibility distance in excess of 75 feet is required.

2. Exterior-illuminated signs are most desirable where the same sign must be effective for both normal and blackout conditions.

3. Reflectorized symbols are effective when properly placed; they are relatively inexpensive and should be used in advance of curves or intersections requiring a reduction in speed below 20 miles per hour.

4. Visible center-lines are the most effective and necessary markings. They should be continuous on curves.

The report recommended that present highway marking efforts should be directed primarily toward installing markings that are most effective for both normal and blackout conditions.

•

Cleveland Milk Firms in Joint Action Plan

A JOINT ACTION plan for every-other-day retail milk deliveries, submitted by 81 Cleveland, Ohio, dairy companies, was approved recently by ODT. The plan will remain in effect for the duration of the war.

A proponent also is prohibited under the plan from making a delivery to any customer who has received a delivery of dairy products from any of the other proponents during the previous 48 hours.

The plan is expected to make possible a substantial reduction in retail delivery truck mileage for the 81 signers, who do approximately 95 per cent of the retail dairy business in the Cleveland area, the ODT said.

ODT EXTENDS TRUCK TIRE INSPECTION "DEADLINE" TO FEBRUARY 28

BUT there's no deadline on tire records, which must be kept continuously.

ODT's rules on tire records are not tough—provided your tire plan is set up along systematic lines.

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Car Rental Industry Pledges Cooperation

REPRESENTATIVES of the rental car industry have pledged to the ODT their cooperation in eliminating driving for pleasure in the Eastern Seaboard area.

At a recent meeting with ODT officials in Washington, spokesmen for both the drive-yourself industry and the livery car industry said that every effort would be made to prevent automobile rentals for pleasure or recreational purposes. The voluntary cooperation was promised after the meeting agreed that the fuel conservation aims of the pleasure driving ban of the OPA would be partially defeated if the restrictions imposed on private cars were not applied also to rental cars.

The industry representatives said that members in the 17 Eastern States and the District of Columbia would be circularized immediately to obtain their compliance.

●

Horses Too Slow for American Life

DR. WILLIAM F. OGBURN, University of Chicago sociologist and consultant for the government's own National Resources Planning Board, expresses grave doubt whether the American social and economic organization can function as it must function in war if automobiles cease to roll over the roads.

"You can't do away with the automobile without wrecking civilization," says Dr. Ogburn, adding, "More than 2,000 towns without it would have to go out of existence. The horse is too slow for the tempo of American life and without the car, suburban growth, except in the vicinity of big plants, will be halted. Our planners should put up enough synthetic rubber plants to make all the tires we need."

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Jeffers Gets Bigger Rubber Powers

THE WPB last month gave Rubber Director Jeffers greater authority to allot rubber among all military and civilian claimant agencies. . . . This directive gives Jeffers absolute control over the distribution of the nation's entire rubber supply, including all allocations and apportionments from the rubber stockpile. . . . It also gives him power to issue, administer and, if necessary, to amend or repeal any orders regulating the use, production and distribution of rubber and rubber products.

•

Five Companies Pooled on Synthetic

RUBBER Reserve Company announces that a new government-owned plant for the manufacture of synthetic rubber will be built in Kentucky. . . . Five independent companies will participate in the ownership of National Synthetic Rubber Corporation, which will operate the plant. . . . They are: Goodall Rubber, Inc., Hamilton Rubber Mfg. Company, Hewitt Rubber Corporation, Lee Rubber & Tire Corporation, and Minnesota Mining & Manufacturing Company.

•

School Bus Fleets Must Renew CWN

THE ODT last month started a nationwide mailing of applications to local school authorities for the continuation of Certificates of War Necessity for the operation of school buses. . . . "Mileage and gasoline allowances certified after February 1 will depend upon demonstrated proof showing the extent of adjustment of school transportation service in accordance with the policies presented," Mr. Eastman said.

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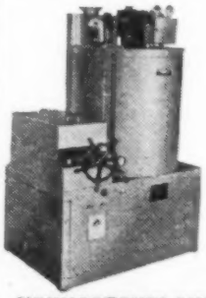
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ODT ISSUES "SAMPLE" PLAN

● In a move to help over-the-road common and contract carriers in drawing up joint-action plans for truck and tire conservation, ODT has recently published a comprehensive "sample" joint action plan, which such carriers may use as a guide. . . . The sample plan is not a "form" but is rather a hypothetical example of the manner in which joint action plans should be submitted for ODT approval. . . . It is particularly interesting and should be helpful, because in its composite form it is said to include any and all possibilities for joint action which might be included in such a plan. . . . Inquiries concerning joint action plans, and free copies of the new sample plan may be obtained by writing to the Property Carrier Section, Motor Transport Division, Office of Defense Transportation, Washington, D. C.

●

MAY USE CREDIT CARDS

● Early last month the Petroleum Administration for War moved to eliminate credit extension at gasoline filling stations throughout the nation, as a means of simplifying the work of petroleum companies and conserving manpower. . . . The Directive (No. 62) was effective immediately, but commercial vehicle operators were given until February 1 to discontinue this practice. . . . An amendment, just issued, exempts Federal, State or local governments from the ban on credits, as well as commercial motor boats and motor vehicles displaying "T" ration stickers. . . . This means that you can still use your credit cards at gasoline stations throughout the country, and won't have to pay cash, as was originally ordered. . . . Dealers' coupon or script books may be used by anyone else, however, only when sold for cash.

●

British Buses to Use Producer-Gas

FIFTY-SEVEN bus operators in the United Kingdom, with 150 pieces of equipment, will be required by the Government to convert 10 percent of their total fleet from gasoline power to producer-gas by July 1943, the Department of Commerce reports.

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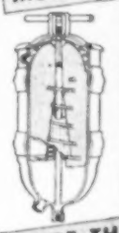
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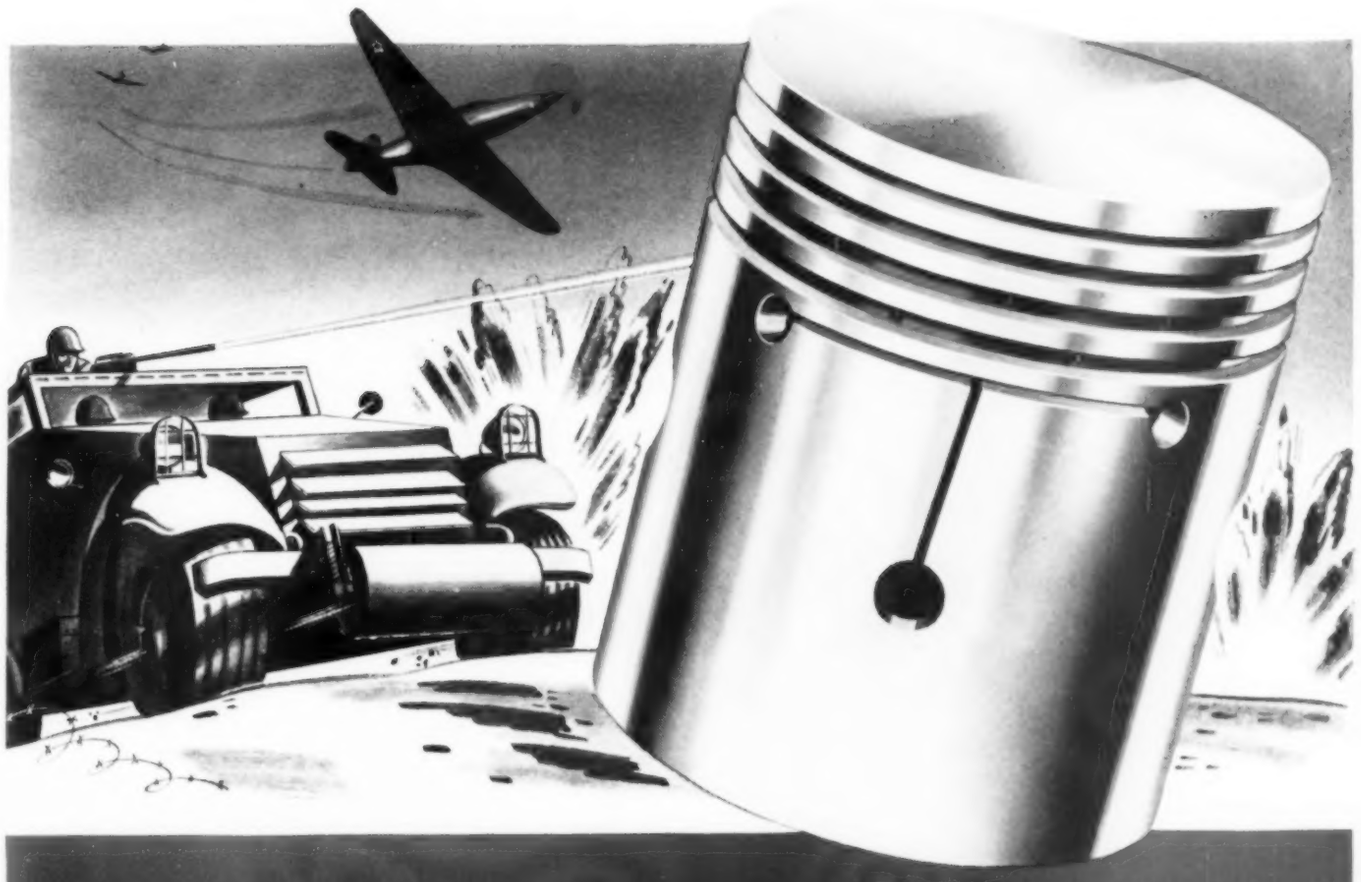

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